1. Which muscle is inserted into the floor of the intertubercular sulcus of the humerus?

a) Latissimus dorsi

b) Teres major

c) Pectoralis major

d) Deltoid

Correct Answer - A
Ans. is 'a' i.e., Latissimus dorsi
The shaft of humerus is cylindrical in the upper half and triangular on cross-section in the lower half. The upper part has intertubercular sulcus (bicipital groove) anteriorly. Bicipital groove contains long head of biceps with its synovial sheath and an ascending branch of anterior circumflex humeral artery. Middle third of posterior surface of shaft of the humerus has a spiral groove (radial groove) which contains radial nerve and *profunda brachi vessels.*
Attachment to shafts are ?
* Insertions of pectoralis major (on lateral lip of bicipital groove), latissimus dorsi (on floor of bicipital groove), teres major (on deltoid tuberosity) and coracobrachialis (medially on mid shaft).
* Origin of brachialis (anterior surface); Lateral and medial head of triceps (posterior surface); pronater teres (from medial supracondylar ridge); brachioradialis (from lateral supracondylar ridge) and ECRL (from lateral supracondylar ridge).

2. At what level does the trachea bifurcates ?

a) Upper border of T4

b) Lower border of T4

c) 27.5 cm from the incisors

d) Lower border of T5

Correct Answer - B

Ans. is 'b' i.e., Lower border of T_4 [Ref BDC S^{th}/e Volume 1 p. 267]

Trachea bifurcates at carina, at the level of lower border of T, or T4 - T5 disc space.

3. Cricoid cartilage lies at which vertebral level ?

a) C3

b) C6

c) T1

d) T4

Correct Answer - B
Ans. is 'b' i.e., C6 [Ref BDC 5^{l}'Ve Vol. III, p. 237]

4. Which of the following is true about vertebral development -

a) The notochord forms the annulus fibrosus

b) The sclerotome forms the nucleus pulposus

c) The sclerotome surrounds the notochord only

d) The sclerotome surrounds the notochord and the neural tube

Correct Answer - D

Ans. is 'd' i.e., The sclerotome surrounds the notochord and the neural tube [Ref Langman's embryology 10th/e p. 140]

Development of vertebral column

- The human nervous system develops from neuroectoderm.
- During development, behind the neuroectoderm lies the mesoderm (paraxial mesoderm) that encloses the notochord (a derivative of endoderm).
- This paraxial mesoderm give rise to somites.
- Somites further differentrated into :
- Dermatomyotome :- Give rise to skeletal muscles and dermis.
- Sclerotomes :- Give rise to vertebral column.
- Sclerotornes which surround notochord starts projecting posteriorly (dorsally) to surround neural tube and forms.
- Ventral sclerotomes :- Give rise to vertebral body and annulus fibrosus, Lateral sclerotomes :- Give rise to vertebral arch (pedicle and lamina).
- Dorsal sclerotomes :- Give rise to spinous process. The notochord forms the nucleus pulposus.

5. Which of the following is not a congenital anomaly?

a) Amastia

b) Polymastia

c) Polythelia

d) Mastitis

Correct Answer - D

Ans. is 'd' i.e., Mastitis [Ref Human embryology by Inderbir Singh 8th/e p. 103]

Developmental anomalies of the mammary glands :

1. Amastia : The gland may be absent on one or both sides.
2. Athelia : Absence of nipple
3. Polythelia and polymastia : Supernumerary breasts and nipples along the milk line.
4. Inverted or crater nipple
5. Micro or macromastia

6. Rectum develops from

a) Cloaca

b) Hind gut

c) Allantoic remnants

d) Urogeital sinus

Correct Answer - A:B
Ans. is `b > a' i.e., Hind gut > Cloaca [Ref : Inderbir Singh human embryology Sth/e p. 149]
Postallantoic part of hind gut is the dilated endodermal cloaca, which is separated from the surface by cloacal membrane.
Urorectal septum divides endodermal cloacae into
Anterior part, known as primitive urogenital sinus, which develops into urinary bladder and urethra.
Posterior part, known as primitive rectum, which gives rise to lower part of rectum and upper part of anal canal.

7. Skeletal derivative of 2°' pharyngeal arch -

a) Malleus

b) Incus

c) Stapes

d) Maxilla

Correct Answer - C
Ans. is `c' i.e., Stapes

8. All are derived from ectoderm except -

a) Hypophysis

b) Retina

c) Spinal cord

d) Adrenal cortex

Correct Answer - D
Ans. is 'd' i.e., Adrenal cortex [Ref Inderbir Singh Human Embryology S^{th}/e p. 300]
The cells of the adrenal cortex arise from the coelomic epithelium (mesoderm).
The cells of the medulla are derived from the neural crest cells (ectoderm).
The anterior pituitary is derived from the surface ectoderm lining the oral cavity as it is an outgrowth from the Rathke's pouch.
The posterior pituitary is actually a continuation of the hypothalamus and so it is derived from the neural ectoderm.·
The spinal cord and brain are derived from the neural ectoderm.
The retina is also derived from the neural ectoderm.

9. Development of labia majora is from -

a) Urogenital sinus

b) Mullerian duct

c) Genital ridge

d) Genital swelling

Correct Answer - D

Ans. is 'd' i.e., Genital swelling [Ref: Inderbir Singh Human Embryology S^{th}/e p. 256]

Embryogical structure	Fate in female	Fate in male
Genital swelling	Labia majora	Scrotum
Genital fold	Labia minora	Ventral aspect of penis, penile urethra
Genital tubercle	Clitoris	Glans penis

10. Blastocyst makes contact with endometrium on ?

a) < 3 days

b) 5 - 7 days

c) 8 - 11 days

d) 15 -16 days

Correct Answer - B
Ans. is 'b' i.e., 5 -7 days [Ref: Text book of Human embryology - 286]
Contact of blastocyst with endometrium occurs at the time of implantation.
Implantation occurs at around 6 -7 days.

11. Haploid number of chromosomes is seen in ?

a) Spermatogonia

b) Primary spermatocytes

c) Secondary spermatocyte

d) None

Correct Answer - C

Ans. is 'c' i.e., Secondary spermatocyte [Ref Ganong 23'd% p. 403, 404]

Diploid means that cell contains 46 chromosomes (diploid of 23) and haploid means that cell contains 23 chromosomes.

Development of sperm is as follows : -

- Spermatogonia(Diploid-46) → Primary spermatocyte (Diploid-46)

Primary spermatocyte (Diploid-46) is of 2 types-

1. Secondary spermatocyte → Spermatid (Haploid-23)
2. Secondary spermatocyte (Haploid-23) → Spermatid (Haploid-23)

- Similarly in oogenesis, haploid number is seen in secondary oocyts.

12. Sperm chromosome faster is -

a) X chromosome

b) Y chromosome

c) Both same

d) None

Correct Answer - B
Ans. is 'b' i.e., Y chromosome [Ref Priciple of medical physiology - 51]
The human Y chromosome is smaller than X chromosome.
Hence, the sperms containing Y chromosomes are lighter and swim faster up the female genital tract, reaching the ovum earlier than the Y bearing sperms.
This probably contributes to the fact that the global male birth rate is slightly higher then the female birth rate.

13. All are derived from ectoderm except ?

a) Lens

b) Eustachian tube

c) Brain

d) Retina

Correct Answer - B

Ans. is 'b' i.e., Eustachian tube [Ref HUMAN EMBR YOLOGY edited by Krishna Garg, 2"dle p. 56, 133]

Eustachian tube originates from the first pharyngeal pouch i.e. Endoderm.

Endoderm	**Ectoderm**	**Mesoderm**
Epithelium of whole g.i.t. Resp.tract (Eustachian tube) Pharyngeal pouches Liver & GB Urethra UB Lower part of vagins Ducts & acimi of pancreas Most endocrinal glands (except adr. medulla &	Brain Neural Crest Adrenal Medulla Pharyngeal clefts Oligodendrocytes Lens (from surface E-) Iris muscles (Sphincter & dilator pupillae) Epithelium of cornea, conjunctiva outer Lids Renal pigment epithelium Sensory retina Membranous Labyrinth	LN & Spleen Mesenchyme Mesothelium Pharyngeal aches CVS, blood, BM Duramater Trigone of UB Monocyte dery (Ex-Microglia) Cillary body & iris stroma (except epithelium) Sclera, choroid, vitreous Stroma of cornea Lids (Muscles) Adrenal Cortex Bony orbit

pituitary which are ectoderm)		

14. Which of the following is derived from endoderm?

a) Gall bladder

b) Lens

c) Spleen

d) Lymph nodes

Correct Answer - A
Ans. is 'a' i.e., Gall bladder [Ref Embryology Garg 2"/e various pages]

15. Development of peritoneal cavity is from ?

a) Mesenchyme

b) Intraembryonic coelom

c) Ectoderm

d) Endoderm

Correct Answer - B

Ans. is 'b' i.e., Intraembyonic coelom [Ref Embryology by Indu Khuran 2"dle p. 96]

All body cavities develop from intraembryonic coelum. These cavities are peritoneal cavity, pleural cavity and pericardial cavity.

- The peritoneum develops ultimately from the mesoderm of the trilaminar embryo.
- Lateral plate mesoderm splits to form two layers separated by an intraembryonic coelom.
- These two layers develop later into the visceral and parietal layers found in all serous cavities including peritoneum. And the potential space of intraembryonic coelom between these two layers become the body cavities like peritoneal cavity, pleural cavity and pericardial cavity.
- As embryo develops, the various abdominal organs grow into the abdominal cavity from structures in the abdominal wall. In this process they become enveloped in a layer of peritoneum, i.e. visceral layer.
- Peritoneal folds develop from the ventral and dorsal mesentery of the embryo.
- Peritoneum, pericardium and pleura develop from -, Mesoderm (lateral plate mesoderm)
- Peritoneal cavity, pericardial cavity and pleural cavity develop from

Intraembryonic coelom.

16. Cytotrophoblasts invades ?

a) D parietalis

b) D basal is

c) D capularis

d) None

Correct Answer - B
Ans. is 'b' i.e., D basalis [Ref Human Embryology by Rani Kumar p. 37]
After embedding of blastocyt in the endometrial stroma, the trophoblast differentiates into -

- Cytotrophoblast
- Syncytiotrophoblast
- Syncytiotrophoblast invades uterine epithelial cells.
- Cytotrophoblast invades Decidua basalis (D basalis) after passing through overlying syncytotrophoblast.

17. Coronary sinus develops from ?

a) Truncus arteriosus

b) Conus

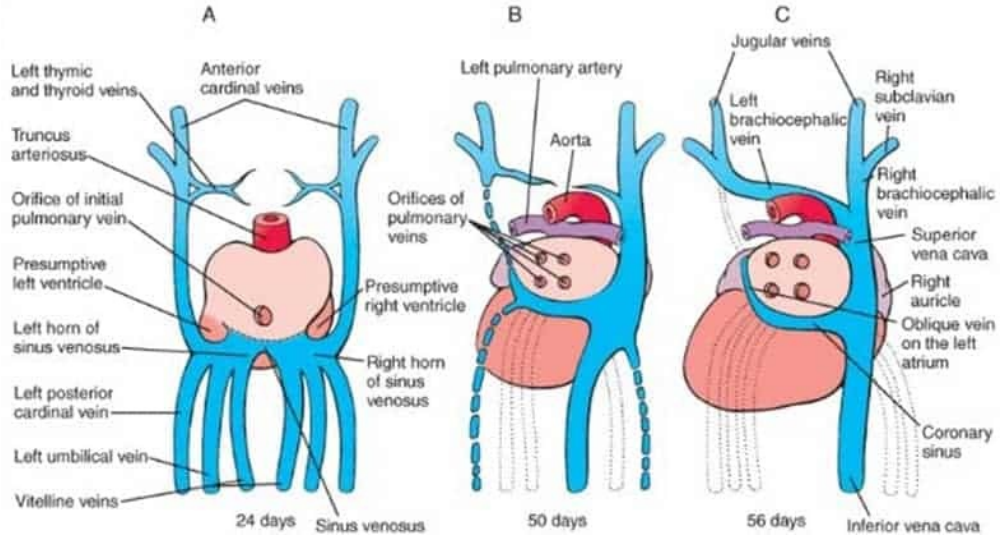
c) Sinus venosus

d) AV canal

Correct Answer - C

Ans. is 'c' i.e., Sinus venosus [Ref Essentials of human embryology p. 873]

The Coronary sinus develops from the Sinus venosus segment of embryonic heart. Left horn of sinus venosus retrogresses to form part of coronary sinus



18. Which is derived from wolfian duct ?

a) Appendix of testis

b) Uterus

c) Appendix of epididymis

d) Hydatid of margagni

Correct Answer - C
Ans. is 'c' i.e.,Appendix of epididymis [Ref IB singh 8^{r}"/e - 260]
Appendix of epididymis develops from mesonephric (wolffian) duct.
Appendix of testis (also called hydatid of margagni) and uterus develop from paramesonephric duct.

19. Artery of 2nd pharyngeal arch is ?

a) Maxillary artery

b) Stapedial artery

c) Subclavian artery

d) Common carotid artery

Correct Answer - B

Ans. is 'b' i.e.,Stapedial artery [Ref Garg 2"/e - 223; Langman's - 185]

2nd (hyoid arch) :	Stapedial artery
3rd:-	Common carotid/internal carotid
4th:- :	Right 4th aortic arch, subclavian artery, Left 4th aortic arch: aortic arch
6th:-	Right aortic arch: pulmonary artery, Left 6th aortic arch: Pulmonary artstxand ductus arteriosus

20. Fossa ovalis is a remnant of ?

a) Septum primum

b) Septum secundum

c) Ductus arteriosus

d) Ductus venosus

Correct Answer - A
Ans. is 'a' i.e., Septum primum [Ref BDC 5th/e Volume 1 p. 247; IBS 7"Ve p. 265; Garg 2"/e p. 215]
Fossa ovalis is a remnant of foramen ovale. Floor of fossa ovalis is remnant of septum primum.

21. Y chromosome is ?

a) Metacentric

b) Submetacentric

c) Acrocentric

d) None

Correct Answer - C

Ans. is 'c' i.e.,Acrocentric

Each chromosome has two arms :-

1. p arm (the shorter of two)
2. q arm (longer one

Depending on the position of there junction (centromere) they can be classified into :

1. Metacentric

- The centromere is in the middle so that the two arms of chromosomes are almost equal.
- These chromosomes are : chromosomes 1, 2, 3 and X-chromosome.

2. Submetacentric

- p arm is short and q arm is long. These chromosomes are : 4, 5, 6, 7, 8 and 9

3. Acrocentricp

- (short) arm is so short that it is hard to observe, but still present.
- There are six acrocentric chromosomes : 13, 14, 15, 21, 22 and Y chromosomes

22. The outer layer of the blastocyst forms ?

a) Primitive streak

b) Yolk sac

c) Embryo proper

d) Trophoblast

Correct Answer - D

Ans. is 'd' i.e.,Trophoblast [Ref Singh IB, Human embryology Stile p. 38]

Blastocyst possesses an inner cell mass called embryoblast which subsequently forms the embryo proper, and an outer layer of cells, or trophoblast, which helps to provide nutrition to the embryo.

23. Inferior parathyroid develops from which arch ?

a) 1st

b) 2nd

c) 3rd

d) 4th

Correct Answer - C

Ans. is 'c' i.e., 3rd [Ref Langman's 11th/e p. 269]

24. Mesodermal in origin ?

a) Astrocytes

b) Oligodendrocytes

c) Ependymal cells

d) Microglial cells

Correct Answer - D
Ans. is 'd' i.e., Microglial cells [Ref I.B. singh p. 319-321]
Microglial cells are the nervous system counterpart of the monocyte macrophage system.
The unique feature about microglia is that unlike other neuroglial cells it is not developed from neuroectoderm.
These cells are mesodermal in origin.

25. Fossa ovalis closes because of fusion of ?

a) Septum primum + Endocardial cushion

b) Septum secundum + Endocardial cushion

c) Septum primum + Septum secundum

d) None

Correct Answer - C
Ans. is 'c' i.e., Septum primum + Septum secundum [Ref Essentials of human embryology — 213-215]
After birth, the foramen ovale closes by fusion of septum primum with septum secundum.

26. Which of the following is a traction epiphysis ?

a) Tibial condyles

b) Trochanter of femur

c) Coracoid process of scapula

d) Head of femur

Correct Answer - B

Ans. is 'b' i.e., Trochanter of femur *[Ref BDC handbook of general anatomy 3rd/e p. 34]*

27. **Glands are classified depending upon their mode of secretion. Sebaceous gland is an example of which of the following type of gland?**

a) Eccrine

b) Apocrine

c) Holocrine

d) Paracrine

Correct Answer - C

Sebaceous glands are holocrine glands. Holocrine glands are those in which the cell after filling with secretory product dies and is expelled along with its content.

- **Eccrine glands** are those in which secretory product is expelled by exocytosis. Eg sweat glands involved in thermoregulation and receiving cholinergic sympathetic innervation.
- **Apocrine glands** are those in which the secretory product accumulates in the apical cytoplasm and is expelled out by pinching of the apical plasma membrane. Eg mammary gland and apocrine type of sweat glands that are active after puberty and are found in the skin of axilla and around genital organs.

Ref: Clinical Anatomy: (a Problem Solving Approach) By Kulkarni page 9

28. Corpora amylaciae is seen in -

a) Thymus

b) Lymph node

c) Spleen

d) Prostate

Correct Answer - D
Ans. is 'd' i.e., Prostate

29. Corpora arenacea is seen in ?

a) Prostrate

b) Pineal

c) Seminal vesicle

d) Breast

Correct Answer - B
Ans. is 'b' i.e., Pineal [Ref Textbook of human histology-323]
Corpora arenacea (or brain sand) are calcified structures in Pineal gland and other areas of brain such as choroid plexus.

30. Nutrient artery runs ?

a) Towards metaphysis

b) Away from metaphysis

c) Away from epiphysis

d) None

Correct Answer - A

Ans. is 'a' i.e., Towards metaphysis [Ref Textbook of general anatomy p. 80]

Nutrient artery

- It enters the middle of the shaft through a nutrient foramen, runs obliquely through the cortex, and then divides into ascending and desending branches that run towards metaphysis.
- Each branch subdivides into a number of smaller parallel vessels which enter the metaphysis and form hair-pin loops.
- The loops anostomose with epiphyseal,metaphyseal and periosteal arteries.
- Therefore, metaphysis is the most vascular zone of the long bone.
- The nutrient artery supplies the medullary cavity and inner-two third of cortical bone of diaphysis and metaphysis

31. Multi-unit smooth muscle present at all except ?

a) Blood vessels

b) Iris

c) Gut

d) Ductus deferens

Correct Answer - C
Ans. is 'c' i.e., Gut [Ref BDC genral anatomy 4"/e p. 96; Fundamental of humen anatomy p. 6]

32. Vasa Vasorum of ascending aorta arises from ?

a) Left coronary artery

b) Anterior interventricular artery

c) Posterior interventricular artery

d) Left atrium

Correct Answer - A

Clinical anatomy

- "Both coronary arteries supply vasa vasorum of ascending aorta"
- "Coronary arteries are vasa vasorum of ascending aorta"

Vasa vasorum of ascending aorta and arch of aorta arise from :

- Coronary arteries (at their ostia).
- Brachiocephalic trunk.
- Bronchial artery.

Vasa vasorum of descending aorta arise from':

- Intercostal arteries (thoracic part).
- Lumbar and mesenteric arteries (abdominal part).

33. Renal papilla opens into -

a) Cortex

b) Pyramid

c) Minor calyx

d) Major calyx

Correct Answer - C

Ans. is 'c' i.e., Minor calyx

Each kidney has two distinct zones :

1. The outer cortex
2. The inner medulla

-The medulla comprises about 10 renal pyramids. Their apices form renal papillae which indent the minor calyces.

-The cortex is divided into two parts

- Cortical arches or cortical lobules, which form caps over the bases of the pyramids.
- Renal columns, which dip in between the pyramid.

Each pyramid along with overlying cortical arch forms a lobe of the kidney.

The renal sinus is a space that extends into the kidney from the hilus.

It contains :

- Branches of the renal artery.
- Tributaries of the renal vein.
- Renal pelvis: Pelvis divides into 2 to 3 major calyces, and these, in turn, divide into 7-13 minor calyces. Each minor calyx ends in an expansion which is indented by one to three renal papillae

34. 1^{st} carpometacarpal joint is?

a) Pivot

b) Hinge

c) Ball and Socket

d) Saddle

Correct Answer - D
Saddle

35. Structure passes through upper triangular space:

a) Profunda brachii

b) Anterior circumflex humeral artery

c) Posterior circumflex humeral artery

d) Circumflex scapular artery

Correct Answer - D

Upper Quadrangular space

- It has the following boundaries:
  - the teres major inferiorly
  - the long head of the triceps laterally
- For the superior border, some sources list the teres minor, while others list the subscapularis.
- It contains the scapular circumflex vessels.

36. Following a deep cut overlying the hypothenar eminence, it is observed that the patient cannot hold a sheet of paper between the 2nd and 3rd digits. Which of the following nerves is most likely damaged?

a) Deep branch of ulnar nerve

b) Deep branch of the radial nerve

c) Superficial branch of ulnar nerve

d) Median nerve

Correct Answer - A
Ans. is 'a' i.e., Deep branch of ulnar nerve [Ref BDC 5th le Volume I p. 110-111]
Inability to hold paper sheet signifies inability to adduct the fingers. It is nothing else but card test.
Deep branch of ulnar nerve supplies the palmar interossei which control the adduction between fingers.

37. Which is true about synovial joint ?

a) Stability is inversely proportional to mobility

b) Hyaline cartilage covers articular surface of all synovial joints.

c) Metacarpo-phalangeal joint is a hinge joint

d) "Cartilage usually divides the joint into two cavities".

Correct Answer - A
A i.e. Stability is inversely proportional to mobility

38. **A patient is found to have a melanoma originating in the skin of the left forearm. After removal of the tumor from the forearm, all axillary lymph nodes lateral to the medial edge of the pectoralis minor muscle are removed. Which axillary nodes would not be removed?**

a) Apical lymph nodes

b) Central lymph nodes

c) Lateral lymph nodes

d) Pectoral lymph nodes

Correct Answer - A

The lymph nodes lateral to the LATERAL edge of the pectoralis minor are the lateral axillary nodes. Pectoral or anterior axillary nodes are deep to the lateral edge of the pectoralis major muscle. Central axillary nodes are found directly under pectoralis minor, while subscapular or posterior axillary nodes are adjacent to the subscapularis muscle. The apical axillary nodes are medial to the medial edge of pectoralis minor and so it won't be removed.

level	Part of axilla	Lymph nodes
I	Low axilla	Lymph nodes lateral to the lateral border of pectoralis minor(central group, lateral group, anterior group, posterior group)
II	Mid axilla	Lymph nodes between the lateral and medial borders of pectoralis minor. plus interpectoral lymph nodes
III	Apical axilla	Lymph nodes medial to medial margin of pectoralis minor (including

		subclavicular, infraclavicular or apical).

39. Which muscle steadies the clavicle during movement of shoulder ?

a) Pectoralis major

b) Latissimus dorsi

c) Subclavius

d) Serratus anterior

Correct Answer - C
Ans. is'c'i.e., Subclavius
(Ref: Clinical anatomy j'd/e p. 1367)

- Subclavius steadies the clavicle during movements of shoulder.

40. During heel touch phase of walking pressure in calf compartment is ?

a) More than resting pressure

b) Less than resting pressure

c) No change in pressure

d) First rises and then falls

Correct Answer - C

Ans. is 'c' i.e., No change in pressure

In heel strike, the ankle is dorsiflexed and the main muscle acting on ankle is tibialis anterior.

Muscles of posterior compartment of leg (Gastrocnemius-soleus) are at their normal length. So, the pressure in posterior compartment does not change.

On the other hand, In push off phase Gastrocnemius-soleus are contracted which results in increased pressure of posterior compartment (whenever there is contraction of muscles of a compartment, pressure of that compartment is increased).

41. The nutrient artery to the femur is?

a) Profunda femoris artery

b) Femoral artery

c) Popliteal artery

d) Middle circumflex femoral artery

Correct Answer - A
Ans. is 'a' i.e., Profunda femoris artery
Nutrient Arteries
The femur is supplied by 2nd perforating branch of profunda femoris artery.
Tibia is supplied by a branch of posterior tibial
The fibula is supplied by the peroneal artery which is a branch of posterior tibial artery.
The humerus is supplied by a branch of profunda brachii artery
Radius/ulna are supplied by the anterior interosseous artery which is a branch of the ulnar artery.

42. **In walking, gravity tends to tilt pelvis and trunk to the unsupported side, major factor in preventing this unwanted movement is?**

a) Adductor muscles

b) Quadriceps

c) Gluteus maximus

d) Gluteus medius and minimus

Correct Answer - D
The gluteus medius muscle abducts and medially rotates the femur at the hip joint. In addition, the gluteus medius holds the pelvis secure over the stance leg, preventing pelvic drop on the opposite swing side during gait. The superior gluteal nerve (L4, L5, S1) innervates this muscle.

The action of the gluteus minimus muscle is the same as that of the gluteus medius—it abducts the femur at the hip joint, holding the pelvis secure over the stance leg and preventing pelvic drop on the opposite swing side during gait and hip medial rotation. The inferior gluteal nerve (L5, S1, S2) innervates this muscle.

43. Site of injection in gluteus ?

a) Inferomedial

b) Superomedial

c) Superolateral

d) Superomedial

Correct Answer - C

Ans. is 'c' i.e., Superolateral

level	Part of axilla	Lymph nodes
I	Upper arm (Deltoid)	5 cm distal to the acromion or 4 cm proximal to the insertion of deltoid. This is to prevent injury to circumflex humeral nerve.
II	Gluteal region	Upper outer (superolateral) quadrant. This is to avoid damage to superior and inferior gluteal vessels and sciatic nerve.
III	Thigh (lateral aspect) (vastus lateralis)	Infant :- Upper lateral quadrant of thigh below GT Adult :- Middle third of lateral aspect.

44. Locking of knee joint can be caused by:

a) Osgood Schlatter

b) Loose body in knee joint

c) Tuberculosis of knee

d) a and b both

Correct Answer - D
Ans. is. d. a and b both
Locking of knee joint (i.e. joint held in flexion) is seen in meniscus tear, loose body (d/t **osteochondral** fracture) and fractures of tibial spine
Mechanism of Locking
Normally the medial meniscus or at least its anterior movable portion glides slightly backwards towards the interior of joint as the knee is flexed.
If the tibia is at the same time abducted (valgus) and the medial compartment of the knee thus opened up, the mobility of the meniscus is still further increased.
Sudden medial rotation of femur on the fixed tibia forces the medial meniscus towards back of joint and causes medial ligament to become taut and it may undergo variety of transverse or oblique tear.
The inner fragment slips into the interior of the joint and when , extension is attempted and the knee begins to screw home' the fragment is nipped between the condyles and the joint is 'locked' i.e. held in flexion.

45. Which structure(s) passes behind the inguinal ligament:

a) Femoral branch of genitofemoral nerve

b) Femoral vein

c) Psoas major

d) All

Correct Answer - D
A i.e. Femoral branch of genitofemoral nerve; B i.e. Femoral vein ; C i.e. Psoas major

46. Deltoid ligament is attached to all except:

a) Medial malleolus

b) Medial cuneiform

c) spring ligament

d) sustentaculum tali

Correct Answer - B
Ans. B i.e. Medial cuneiform
Medial collateral ligament (deltoid ligament) attaches to the medial malleolus of the tibia and the navicular, talus, and calcaneus bones. This ligament prevents medial distraction (eversion) and excessive range of motion. It is subdivided into four parts:

- Tibionavicular part attaches the margin of the plantar calcaneonavicular ligament (spring ligament).
- Tibiocalcaneal part attaches to the sustentaculum tali of the calcaneus bone.
- Posterior tibiotalar part attaches to the medial side and medial tubercle of the talus.
- Anterior tibiotalar part attaches to the medial surface of the talus.

47. True about popliteus are all except?

a) Flexor of knee

b) Intracapsular origin

c) Supplied by tibial nerve

d) Causes locking of knee

Correct Answer - D

Popliteus

Popliteus is a deep muscle of posterior compartment of leg.

Features of popletius are -

Origin

- Lateral surface of lateral condyle of femur, origin is intracapsular.
- Outer margin of lateral meniscus of knee.

Insertion

- *Posterior surface of shaft of tibia above soleal line.*

Nerve supply

- Tibial nerve

Action

- *Ulocks knee joint* by lateral rotation of femur on tibia prior flexion.
- Accessory flexor of knee.

48. Tibial nerve injury/palsy causes:

a) Dorsiflexion of foot at ankle joint

b) Planter flexion of the foot at ankle joint

c) Loss of sensation of dorsum of foot

d) Paralysis of muscles of anterior compartment of leg

Correct Answer - A
A i.e. Dorsiflexion of foot at ankle joint
* Tibial nerve (the larger component of sciatic nerve) supplies all muscles of posterior compartment of leg (gastrocnemius, soleus, plantaris, popliteus, tibialis posterior, FHL & FDL) planti flexing the ankle & foot. Therefore, tibial nerve injury results in loss of planter flexion along with calcaneo-valgus attitude of foot (ie dorsiflexion & eversion d/t unopposed anterior compartment muscles).
- Deep peroneal (fibular) nerve supplies all anterior leg compartment muscles (tibialis anterior, EHL, EDL, EDB, PT) dorsiflexing the ankle & foot.
- Sole is supplied by medial & lateral plantar and sural branches of tibial nerveQ anteriorly (from medial to lateral) and calcaneal branches of tibial nerve0 posteriorly (i.e. over heel).
- It then passes along lateral side of foot and little toeQ supplying the overlying skin.
- Anterolateral aspect of leg, and dorsum of foot including 2" - 4^{th} zveb spacesQ are supplied by superficial peroneal nerve.
- Whereas deep peroneal (fibular) nerve supplies 1^{st} web space (i.e. adjacent sides of great and second toes)Q

49. Nerve supply of cervical esophagus ?

a) Vagus

b) Left recurrent larynageal nerve

c) Right recurrent larynageal nerve

d) All of the above

Correct Answer - D

Ans. is d'., All of the above

[Ref Clinical anatomy 3'd/e p. 2891

Nerve supply of esophagus:

- Esophagus is supplied by both parasympathetic and sympathetic fibers.

A) Parasympathetic supply

- It provides sensory, motor and secretomotor supply to esophagus.

Complete parasympathetic innervation is provided by vagus nerve:-

1. Cervical esophagus: Through both (right & left) recurrent laryngeal nerve.
2. Upper thoracic esophagus: Through left recurrent laryngeal nerve and by direct branches from vagus nerve.
3. Lower thoracic esophagus: Through esophageal plexus.

B) Sympathetic supply

- It provides sensory and vasomotor supply.
- It is provided by Ts to Tc spinal segments.

50. A patient with native aortic valve disease came with right hemiparesis. What will you do to prevent further stroke?

a) Antiplatelet only

b) Anticoagulant only

c) Both antiplatelet and anticoagulant

d) One dose of low molecular weight heparin sub-cutaneously followed by dual antiplatelet therapy

Correct Answer - A
Answer- A. Antiplatelet only
* Aspirin is the only antiplatelet agent that has been proven elfectivefor the acute treatment of ischemic stroke; use of aspirin within 48 hoars of stroke onset reduced both stroke recurrence risk and mortality minimally.
* Asprin is the only antiplatelet agent that has been proven effecfive for the acute treatment of ischemic stroke; there are several antiplatelet agents proven for the secondary prevention of stroke.
* Two layer trials, the International Stroke Trial (IST) and the Chinese Acute Stroke Trial (CAST),found that the use ofaspirin within 48 hours ofstroke onset reduced both stroke recurrence risk and mortality minimally.

51. All form boundaries of triangle of auscultation except

a) Trapezius

b) Latissmusdorsi

c) Scapula

d) Rhomboid major

Correct Answer - D
Ans. is 'd' i.e., Rhomboid major
Triangle of auscultation has the following boundaries

- Superiorly and medially, by the inferior portion of the Trapezius.
- Inferiorly, by the Latissimus Dorsi.
- Laterally, by the medial border of the scapula.
- The superficial floor of the triangle is formed by the Serratus anterior and the lateral portion of the erector spinae muscles.
- Deep to these muscles are the osseous portions of the 6'' and 7^{th} ribs and the internal and external intercostal muscles.
- Typically, the Triangle of Auscultation is covered by the Scapula.
- To better expose the triangle and listen to respiratory sounds with a stethoscope, patients are asked to fold their arms across their chest, medially rotating the scapulae, while bending forward at the trunk, somewhat resembling a fetal position.

52. Which of the following complications is not seen in mitral valve prolapse?

a) Stroke

b) Infective endocarditis

c) Mitral stenosis

d) Ventricular arrhythmia

Correct Answer - C

Answer- C. Mitral stenosis

Surface marking of the mitral valve is Behind sternal end of left 4th costal cartilage.

Infective endocarditis

- Mitral insuficiency (mitral regurgitation)
- Stroke or other systemic infarct resulting from embolism of leaflet thrombi
- Arrhythmias

53. IVC filter is used in following except -

a) To reduces symptoms

b) Negligible size of emboli

c) To prolong life

d) To prevent progress of native blood vessel disease

Correct Answer - B
Answer is 'b' i.e. Negligible size of emboli

54. Waldeyer's fascia lies ?

a) In front of the bladder

b) Behind the rectum

c) Between bladder and uterus

d) Between uterus and rectum

Correct Answer - B
Ans. is 'B' i.e., Behind the rectum
* The cave of Retzius is a fat-filled retropubic space that allows for the accommodation of a distended bladder.
* The Waldeyer's fascia, also known as the presacral fascia, accommodates the distended rectum.
* The pouch of Douglas is a fold of peritoneum between the uterus and the rectum.
* The pouch of Dunn is a fold of peritoneum between the bladder and the uterus.
* The fascia of Denonvillier lies between the bladder in front and rectum behind.

55. Right coronary artery supplies all, except?

a) Anterior 2/3 of ventricular septum

b) SA node

c) AV node

d) LBB

Correct Answer - A

Right coronary artery supplies

* SA node (in 65%),
* whole conducting system (AV bundle, bundle of his, part of left bundle branch) except RBB and part of left branch of AV bundle,
* posterior part of ventricular septum,
* most of right ventricle except small part adjoining anterior interventricular groove and small part of left ventricle adjoining posterior interventricular groove.

Left coronary artery supplies

* most of the left atrium,
* most of the left ventricle including apex,
* small part of right ventricle odjoining anterior interventricular septum,
* anterior 2/3 of ventricular septum,
* RBB, LBB
* SA node in 35% of cases.

56. The thoracic duct crosses from the right to the left at the level of

a) T12 vertebra

b) T 6 vertebra

c) T5 vertebra

d) T2 vertebra

Correct Answer - C
C i.e. T5 vertebrae
Thoracic duct begins as continuation of the upper end of the cisterna chyli near the lower border of T12 vertebra and enters the thorax through the aortic opening of diaphragm (at T12).
It then ascends through the posterior mediastinum and at T5 level crosses from right side to the left side and ascends along left margin ofoesophagus to enter the neck

57. Which of the following statement regarding lower esophageal sphincter is TRUE?

a) It has no tonic activity

b) It has a tone which is provided by the sympathetic system

c) Relaxes on increasing abdominal pressure

d) Relaxes ahead of the peristaltic wave

Correct Answer - D
During swallowing when the peristaltic wave sweep down the esophagus the gastroesophageal sphincter relaxes so that the bolus of food can pass into the stomach.
Distance of the Lower Esophageal Sphincter from the upper incisors is 37.5cm
the lower esophageal sphincter is tonically active but relaxes on swallowing. This tonic activity of the LES between meals prevents reflux of gastric contents into the esophagus. its tone is under neural control by the parasympathetic nervous system. Contraction of LES is caused by the release of acetylcholine from the vagus and release of NO and VIP from interneurons innervated by other vagal fibers causes it to relax.
Ref: Fundamentals of Human Physiology By Lauralee Sherwood page 447. Ganong's Review of Medical Physiology, 24e CHAPTER 27.

58. The transverse sinus is present posterior to which structures?

a) Right atrium

b) Left atrium

c) Upper pulmonary artery

d) Aorta

Correct Answer - D
Ans. 'D' i.e., Aorta
Pericardial sinuses
* On the posterior surface of the heart, the reflection of the serous pericardium (epicardium) around large veins forms a recess called the oblique sinus.
* Oblique sinus is bounded anteriorly by the left atrium, and posteriorly by the parietal pericardium and esophagus.
* The transverse sinus is a short passage that lies between the reflection of the serous pericardium (epicardium) around arterial (aorta and pulmonary trunk) and venous ends of the heart tube.
* The transverse sinus is bounded anteriorly by ascending aorta and pulmonary trunk, posteriorly by SVC, and inferiorly by the left atrium

59. **Sympathetic supply to the heart arises from which of the following spinal segments?**

a) T1 to T5

b) T2 to T6

c) T3 to T7

d) T4 to T8

Correct Answer - A
Sympathetic nerve cells supplying the heart are located in the intermediolateral horn of spinal segments T1 to T5.

Sympathetic supply is cardio-acceleratory, and on stimulation, they increase the heart rate, and also dilate coronary arteries.

Both parasympathetic and sympathetic nerves form the superficial and deep cardiac plexuses, the branches of which run along the coronary arteries to reach the myocardium.

60. Surface marking of the oblique fissure of the lung include all except

a) T_3

b) 5^{th} rib

c) 7^{th} rib

d) 6^{th} costal cartilage

Correct Answer - C

Ans. is 'c' i.e., 7^{th} rib

Surface marking of fissures

The oblique fissure can be drawn by joining:

A point 8 cm lateral to 3rd thoracic vertebrae.

Another point on the 5th rib in the midaxillary line.

A third point on the 6th costal cartilage 7.5 cm from the median plane.

61. Level of lower border of lung at mid axillary line is

a) 6^{th} rib

b) 8^{th} rib

c) 10^{th} rib

d) 12^{th} rib

Correct Answer - B
B i.e. 8^{th} rib

62. Tributary of coronary sinus ?

a) Anterior cardiac vein

b) Thebesion vein

c) Smallest cardiac vein

d) Great cardiac vein

Correct Answer - D

Ans. (D) Great cardiac vein

Coronary sinus

- It opens *in* the posterior wall of right atrium, in the posterior part *of coronary sulcus.*
- Itopens in the right atrium between IVC and tricuspid orifices.
- Coronary sinus is guarded by **Thebesian valve (**Thebesian valve (incomplete semilunar valve) guards the orifice of coronary sinus.)

Tributaries of coronary sinus are :

- *Great cardiac vein :-* Lies in the anterior interventricular groove. *Left marginal vein* drains into it.
- *Middle cardiac vein :-* Lies in the posterior interventricular groove.
- *Posterior vein of left ventricle.*
- *Small cardiac vein :-* It lies in the *posterior part of coronary sulcus with RCA. Right marginnal vein may sometimes open into small cardiac vein, more often, however, right marginal vein opens directly into right atrium.*
- *Oblique vein of left atrium (vein of marshall) :-* It is continuous above with ligament of IVC. These two structures are embryological remnants of left common cardinal vein (duct of cuvier).

63. **Boundary of the Koch's triangle is not formed by?**

a) Tricuspid valve ring

b) Coronary sinus

c) Tendon of todaro

d) Limbus fossa ovalis

Correct Answer - D

Koch's Triangle is a triangle enclosed by the septal leaflet of the tricuspid valve, the coronary sinus, and the membranous part of the interatrial septum.

Koch's triangle: Walter Karl Koch (1880–1962) was a distinguished German surgeon who discovered a triangular-shaped area in the right atrium of the heart that marks the atrioventricular node (known as *Koch's triangle*).

- The three sides of the triangle are defined by the following structures within the right atrium: The ostium of the coronary sinus, posteriorly;
- The anterior portion of the tricuspid valve annulus; and
- The tendon of Todaro (a tendinous structure connecting the valve of the inferior vena cava ostium to the central fibrous body), posteriorly.

Importance:

Used as an anatomical landmark for location of the atrioventricular node during electrophysiology procedures such as pacing or ablation.

64. Azygos vein drains into:

a) Left brachiocephalic vein

b) Inferior vena cava

c) Superior vena cava

d) Right brachiocephalic vein

Correct Answer - C
The azygos vein ends by joining the posterior aspect of the superior vena cava

The Azygos Vein

- The azygos vein connects the superior **and inferior venae** cavae, either directly by joining the IVC or indirectly by the hemiazygos and accessory hemiazygos veins.
- The azygos vein drains blood from the posterior walls of the thorax and abdomen.
- It ascends in the posterior mediastinum
- It is covered anteriorly by the oesophagus as it passes posterior to the root of the right lung.
- It then arches over the superior aspect of this root to join the SVC.
- In addition to the posterior intercostal veins, the azygos vein communicates with the vertebral venous plexuses.
- This vein also receives the mediastinal, oesophageal, and bronchial veins.

65.

Anal valve is found in which part of anal canal ?

a) Upper

b) Middle

c) Lower

d) At anus

Correct Answer - A
Ans. is 'a' i.e., Upper

66. Main support of uterus is from - ligament :

a) Cardinal

b) Broad

c) Round

d) Pubocervical

Correct Answer - A
Cardinal

67. **All of the following arteries are the branches of coeliac trunk, EXCEPT?**

a) Left gastric artery

b) Right gastric artery

c) Splenic artery

d) Hepatic artery

Correct Answer - B
Branches of the coeliac trunk are left gastric artery, splenic artery, and common hepatic artery. The coeliac trunk arises from the abdominal aorta, immediately below the aortic hiatus of the diaphragm at the T12 vertebral level. Right gastric artery is a branch of common hepatic artery.

Branches of common hepatic artery are:

- Proper hepatic artery
- Right gastric artery
- Gastroduodenal artery: right gastroomental artery, superior pancreaticoduodenal artery are branches of gastroduodenal artery.
- Cystic artery

Branches of splenic artery:

- Left gastroepiploic artery
- Short gastric branches
- Pancreatic branches

68. Which of the following structures seen in the cavernous sinus?

a) Maxillary division of V nerve

b) Mandibular division of V nerve

c) Internal carotid artery

d) Facial nerve

Correct Answer - C
Ans. c. Internal carotid artery
Contents of the cavernous sinus
Structures in the lateral wall of the sinus
Oculomotor (lll) nerve
Trochlear (lV) nerve
Ophthalmic (1st division of V) nerve
Trigeminal ganglion
Internal carotid artery
Abducent (Vl) nerve

69. Anterior relations of the right kidney are all except?

a) Liver

b) 4^{th} part of duodenum

c) Hepatic flexure

d) Adrenal gland

Correct Answer - B

Ans. is 'b' i.e., 4^{th} part of the duodenum

The posterior surface of both kidneys is related to the diaphragm, medial and lateral arcuate ligament, psoas major, quadratus lumborum, transversus abdominis, subcostal vessels, subcostal nerve, iliohypogastric nerve, and ilioinguinal nerve.

In addition, the right kidney is related to the 12th rib and the left kidney is related to 11th and 12th ribs.

The medial border of each kidney is related to the suprarenal gland above the hilus and ureter below the hilus.

The lateral border of the right kidney is related to the right lobe of the liver and hepatic flexure of the colon. On the left side, it is related to spleen and descending colon.

70. Pancreas divisum indicates which of the following ?

a) Duplication of the pancreas

b) Failure of fusion of dorsal & ventral pancreatic buds

c) Formation of more than two pancreatic buds

d) Formation of only one pancreatic bud

Correct Answer - B
Answer-. is 'b' i.e., Failure of fusion of dorsal & ventral pancreatic buds [Ref Inderbir Singh Human Embryology 8thle p. 168]
Anomalies of pancreatic development may be:
1. Annular pancreas :- Two components of the ventral bud fail to fuse and grow in opposite direction around the duodenum and meet the dorsal pancreatic duct.
2. Pancreatic divisum (divided pancreas) :- Ventral and dorsal buds fail to fuse with each other.
3. Inversion of pancreatic duct :- The main pancreatic duct is formed by the duct of dorsal bud, i.e. accessory duct is larger than the main duct and the main drainage of pancreas is through the minor duodenal papilla.
4. Accessory pancreatic tissue :- May be found as
 * Wall of stomach, duodenum, jejunum or ileum.
 * Meckel's diverticulum

71. 'Obstruction of Inferior vena cava' presents :

a) Paraumblical dilatation

b) Thoraco-epigastric dilatation

c) Oesophagus varies

d) Haemorrhoides

Correct Answer - A:B
A. Paraumbilicus vein dilation and B i.e. Thoraco-epigastric dilation
The thoracoepigastric vein is unique in that it drains to both the Superior Vena Cava (SVC) and to the Inferior Vena Cava (IVC). Hence, it serves as an anastomotic caval-caval link between the two. Furthermore, the thoracoepigastric vein is connected to the portal vein via the paraumbilical vein and thereby serves as a portocaval anastomosis as well.
When a patient experiences portal hypertension, there can be congestion (backup) of blood that enters into the caval system via the thoracoepigastric vein. When this occurs, there can be an externally visible dilation of the paraumbilical (and perhaps even the thoracoepigastric veins) which leads to the appearance of "Caput Medusae"

72. Right ovarian artery is a branch of ?

a) Abdominal aorta

b) Right internal iliac

c) Common iliac

d) External iliac

Correct Answer - A
Ans. 'a' i.e., Abdominal aorta [Ref BDC 5th/e Volume .3 p. 343]
Lateral branches:
* Inferior phrenic artery
* Middle suprarenal artery
* Renal artery
* Testicular / ovarian artery

73. Structure immediately posterior to pancreatic head?

a) Right renal vein

b) Splenic artery

c) Inferior mesenteric vein

d) Coeliac trunk

Correct Answer - A
Ans. is 'a' i.e., Right renal vein [Ref BDC 5`Ve volume 2 p. 306]
Terminal part of right renal vein is posterior to head of pancreatic

74. Which of these best describes the renal angle ?

a) The angle between the lattissimus dorsi and the 12^{th} rib

b) The angle between the erector spinae and the iliac crest

c) The angle between the 12^{th} rib and the erector spinae

d) The angle between the 12^{th} rib and the rectus abdominis

Correct Answer - C

Answer-. is 'C' i.e., The angle between the 12^{th} rib and the erector spinae

The angle between the lower border of the 12^{th} rib and the outer border of the erector spinae is known as the renal angle.

Overlies the lower part of the kidney.

Tenderness in the kidney is elicited by applying pressure over this area.

75. Renal vein thrombosis is associated with all of the following except: *September 2011*

a) Trauma

b) Sickle cell anemia

c) Nephrotic syndrome

d) Dehydration

Correct Answer - B
Ans. B: Sickle cell anemia
Conditions associated with RVT are: Trauma, extrinsic compression (lymoh nodes, aneurysm), invasion by renal cell carcinoma, dehydration (infants), nephritic syndrome and Pregnancy/ oral contraceptives

RVT:

- Acute cases occurs in children and presents with sudden loss of renal function
- Gradual thrombosis occurs in elderly and only manifestation may be recurrent pulmonary emboli or development of hypertension
- Definitive diagnosis can be done through selective renal venography with visualization of the occluding thrombus
- Treatment options consists of anticoagulation and thrombectomy

76. In patients with penile injury, Colle's fascia prevents extravasation of urine in ?

a) Ischiorectal fossa

b) Perineum

c) Abdomen

d) None

Correct Answer - A
Ans. is 'a' i.e., Ischiorectal fossa *[Ref BDC 5th/e Volume H p. 211]*

77. During incision & drainage of ischiorectal abscess, which nerve is/are affected/injured:

a) Superior rectal nerve

b) Inferior rectal nerve

c) Superior gluteal nerve

d) Inferior gluteal nerve

Correct Answer - B
B i.e. Inferior rectal nerve
Through a posterior horse shoe shaped recess both ischiorectal fossae are connected behind the anal canal; so a unilateral abscess may become bilateral.
During dissection of ischio rectal fossa, inferior rectal, pudendal, posterior scrotal or labial nerve & vessels along with perforating branches of S2-S3 and perineal branches of S4 nerve may get damaged.

78. Right hepatic vein drains which segment of the liver?

a) I

b) II

c) IV

d) VII

Correct Answer - D
Ans. is'd' i.e., VII
[Rel Gray's 4fh/e p. 1163-1167; Sabaton 18h/e p. 15841
Segmental anatomy of the liver:

- Based on the distribution of portal vein and hepatic vein, Couinaud divided each physiological (functional) lobe of liver into
- 4 segments each and hence liver is divided into 8 segments.
- The physiological left lobe is composed of 4 segments designated I to IV and is supplied by left branch of hepatic artery, Ieft branch of portal vein and drained by left hepatic duct and left hepatic vein.
- The physiological right lobe consists of segment V, VI, VII and VIII and is supplied by right hepatic artery, right branch of portal vein and drained by right hepatic duct and right hepatic vein.

79. All of the following are structures associated with pterygopalatine fossa, EXCEPT:

a) Pterygopalatine ganglion

b) Mid third of maxillary artery

c) Maxillary nerve

d) Greater petrosal nerve

Correct Answer - B
The **pterygopalatine fossa** is the region between the pterygomaxillary fissure and the nasal cavity.
* The fossa accommodates branches of the maxillary nerve [cranial nerve (CN) V-2], the pterygopalatine ganglion, the *terminal branches* of the maxillary artery, and greater superficial petrosal nerve.

80. **Portal vein is formed by union of which of the following veins?**

a) Superior mesenteric vein & Splenic vein

b) Superior mesenteric vein & inferior mesenteric vein

c) Inferior mesenteric vein & Splenic vein

d) inferior mesenteric vein & Hepatic vein

Correct Answer - A
Portal vein is formed by the union of Superior mesenteric vein (SMV) and splenic vein posterior to the neck of pancreas. The inferior mesenteric vein drains into the splenic vein.
* The hepatic portal vein pass posterior to the first part of duodenum, in the free edge of lesser omentum.
* At the porta hepatis, it divides into right and left branches supplying the right and left lobes of the liver.
* Within the sinusoids of the liver, hepatic portal blood and oxygenated blood from the hepatic artery mix together and come into contact with the hepatocytes, where metabolites such as products of digestion are exchanged.
* Blood from the sinusoids empties into hepatic veins draining the liver and in turn drain into IVC, and blood is returned to heart.

81. Treatment of an incidentally detected Appendicular carcinoid measuring 2.5 cm is:
***September* 2002**

a) Right hemicolectomy

b) Limited resection of the right colon

c) Total colectomy

d) Appendicectomy

Correct Answer - A
Ans. A i.e. Right hemicolectomy

82. Neurovascular plane in anterior abdominal wall -

a) Between ext oblique and internal oblique

b) Between int. oblique and transversus abdominis

c) Below transversus abdominis

d) Above ext. oblique

Correct Answer - B
Ans. is 'b' i.e., Between int. oblique and transverses abdominis [Ref: Human anatomy 5th/p. 73]
The muscles of the anterior abdominal wall consist of three broad thin sheets that are aponeurotic in front, from exterior to interior they are external oblique, internal oblique and transversus.
The nerve and accompanying intercostal vessels lie between the internal oblique and trannsverse abdominis. i.e. neurovascular plane.

83. Celiac plexus block all the following is true except ?

a) Relieved pain from gastric malignancy

b) Cause hypotention

c) Can be used to provide anesthesia for intra abdominal surgery

d) Can be given only by retrocrural (classic) approach

Correct Answer - D
Ans. is 'd' i.e., Can be given only by retrocrural (classic) approach
Celiac plexus block can be done by following three approaches :

- Retrocrural (classic) approach, anterocrural approach and splanchnic nerve block.
- See explanation- 4 of session- 8 of Anaesthesia of All India 2014-15 pattern of this book.

84. Structure crossing dorsal surface of ischial spine are A/E :

a) Internal pudendal vessel

b) Pudendal nerve

c) Obturator nerve

d) Nerve to obturator internus

Correct Answer - C
C. i.e. Obturator nerve
Psoas major, iliacus & pectineus muscles, femoral vessels and nerve, femoral branch of genitofemoral nerve, lateral cutaneous nerve of thigh and lymphatics pass below inguinal ligament.
'PIN' structures i.e. Pudendal nerve, Internal Pudendal vessels, Nerve to obturator internus *come* out *of greater sciatic foramen,* cross the dorsal surface of ischial spine *& enter into lesser sciatic foramen.*

85. In bladder injury, pain is referred to all except ?

a) Upper part of thigh

b) Lower abdominal wall

c) Flank

d) Penis

Correct Answer - C
Ans. is 'c' i.e., Flank [Ref B.D.C. Vol II 6th/e p. 375; Clinical Anatomy - 912]
Pain fibers from bladder pass through both parasympathetic and sympathetic pathway and enter T11- L2 and S2- S4 cord segments. Hence referred pain is felt in the lower part of anterior abdominal wall (hypogastrium), upper part of front of thighs, scrotum or labium majus, penis or clitoris, and perineum.

86. Structure not seen at L3 level ?

a) Iliac vessels

b) Aorta

c) Coeliac trunk

d) IVC

Correct Answer - C
Ans. is 'C' i.e., Coeliac trunk
Coeliac trunk is at T12 - L 1level.
The transverse section at the level of L3 shows lower abdominal organs.

87. Spleen extends from ?

a) 5^{th} to 9^{th} rib

b) 9^{th} to 11^{th} rib

c) 2^{nd} to 5^{th} rib

d) 11^{th} to 12^{th} rib

Correct Answer - B

Ans. is 'b' i.e., 9^{th} to 11^{th} rib [Ref BDC Vol. II Sthle p. 431]

Surface marking of spleen

1. It is marked on the left side of the back, with its long axis corresponding with that of the 10sh rib.
2. The upper border corresponds to upper border of rib, and the lower border to the lower border of the 11''' rib.
3. Medial end lies 4-5 cm from the midline, and the lateral end on the midaxillary line.

88. Which of the following is true about coeliac plexus block?

a) Located retroperitoneally at the level of L3

b) Usually done unilaterally

c) Useful for the painful conditions of lower abdomen

d) Most common side effect is diarrhea and hypotension

Correct Answer - D
Answer- D (Most common side effect is diarrhea and hypotension)

- Celiac Plexus Block:
- Located retroperitoneally at the level of Ll
- Usually done bilaterallv
- Useful for the painful conditions of upper abdomen
- Most common side effect is diarrhea and hvpotension

89. Ovarian fossa is formed by all except?

a) Obliterated umbilical artery

b) Internal iliac artery

c) Ureter

d) Round ligament of ovary

Correct Answer - D

Each ovary lies in ovarian fossa on lateral pelvic wall which is bounded *:?*

Anteriorly: Obliterated umbilical artery

Posteriorly: Ureter and internal iliac artery

90. All are branches of the inferior mesenteric artery except ?

a) Left colic

b) Sigmoidal artery

c) Middle rectal

d) Superior rectal

Correct Answer - C

Ans. 'C' i.e., Middle rectal

Inferior mesenteric artery branches:

1. Left colic artery : It divides into descending and ascending branches.
2. Sigmoidal arteries : These are 2 or 3 in number and supply descending and sigmoid colon.
3. Superior rectal artery : It is a continuation of inferior mesenteric artery in the lesser pelvis and anastomoses with branches of the middle and inferior rectal arteries.

91. Lymphatic drainage of lateral wall of nose

a) Submandibular nodes

b) Retropharyngeal nodes

c) Deep cervical nodes

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above

- Lymphatic drainage of nose is BY Anterior half of nasal cavity (Both septum and lateral wall) -s Submandibular nodes
- Posterior half of nasal cavity (Both septum and lateral wall)Retropharyngeal nodes and upper deep cervical nodes.

92. Bartholin gland situated in ?

a) Superficial perineal pouch

b) Deep perineal pouch

c) Inguinal canal

d) Ischiorecal fossa

Correct Answer - A
Superficial perineal pouch

93. Lymphatic drainage of cervix is to

a) Iliac lymph nodes

b) Para aortic lymph nodes

c) Superficial inguinal lymph nodes

d) Deep inguinal lymph nodes

Correct Answer - A
A. i.e. Iliac lymph nodes

94. Maximum contribution to the floor of orbit is by:

a) Maxillary

b) Zygomatic

c) Sphenoid

d) Palatine

Correct Answer - A

Ans. A. Maxillary

The maxillae are the largest of the facial bones, other than the mandible, and jointly form the whole of the upper jaw. Each bone forms the greater part of the floor and lateral wall of the nasal cavity, and of the floor of the orbit

"Orbital surface of maxilla is smooth and triangular, and forms most of the floor of the orbit"

Also know:

Maxilla is also the most commonly fractured bone of orbital floor.

- The floor (inferior wall) is formed by the orbital surface of maxilla, the orbital surface of Zygomatic bone and the orbital process of palatine bone
- The seven bones that articulate to the orbit are

1. Frontal bone
2. Lacrimal bone
3. Ethmoid bone
4. Zygomatic bone
5. Maxillary bone
6. Palatine bone
7. Sphenoid bone

95. Posterior communicating artery a branch of

a) Internal carotid

b) External carotid

c) Middle cerebral

d) Posterior superior cerebellar

Correct Answer - A
A i.e. Internal carotid

96. Number of vertebrae is usually constant in

a) Cervical

b) Thoracic

c) Lumbar

d) Sacral

Correct Answer - A
Ans. a. Cervical Author please provide
* Illustrated Encyclopedia of Human Anatomic Variation: Opus V: Skeletal Systems: Vertebral column; Numerical Variation in Vertebral Column by Ronald A. Bergman, PhD; Adel K. Afifi, MD, MS; Ryosuke Miyauchi, MD.
* The usual grouping formula of 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 4 coccygeal vertebrae is found in only about
* The cervical region is reported to be the most constant[Q], the coccygeal the most variable 20% of individuals studied.
* The number of elements of the vertebral column has been reported to vary between 32 and 35. Addition to a group is frequently seen, which occurs through the reduction in number of vertebrae of an adjacent group, the total number being
* The location of such a vertebra is predominately at the ends of the column and at the levels of transition between its regions. Thus, sacralization of the fifth lumbar, lumbar-like articular processes in the eleventh thoracic, and thoracic costal facets on the seventh cervical are observed.
*unchanged. In this variation, the vertebra added is usually intermediate in form between the adjacent groups.
* The levels of transition may be shifted cephalad, resulting in 23 mobile vertebrae, or shifted caudad, resulting in 25 presacral

vertebrae. Such variations may occur in 2-11% of the population
* The number of vertebrae comprising the sacrum maybe increased to six, resulting from the fusion of the first coccygeal (50% in whites, 30% in Negroes) or, less often, of the last lumbar (sacralization) (8% in whites, 11% in Negroes); or it maybe increased to seven, resulting from the fusion of the first coccygeal and the last lumbar (4% in whites, 1.5% in Negroes). The number maybe reduced to four, apparently by the lumbarization of the first sacral (0.4% in whites, 1.5% in Negroes).

Number of vertebrae

* Most constant: Cervical region°
* Most variable: coccygeal region°

97. **Ophthalmic artery is a branch of ?**

a) Cavernous part of ICA

b) Cerebral part of ICA

c) MCA

d) Facial artery

Correct Answer - B

The common carotid arteries bifurcate at the level of the thyroid cartilage into the external and internal carotid arteries. The external carotid artery sends branches to the neck and face, whereas the internal carotid artery ascends to the base of the skull, entering the carotid canal. Upon exiting the carotid canal, the internal carotid artery courses horizontally over the foramen lacerum and enters the cavernous sinus and, after turning superiorly, divides into its terminal branches.

Internal carotid artery

It is the main artery supplying structures inside the cranial cavity and orbit. It is divided into 4 parts :?

* Cervical part :- It extends from upper border of thyroid cartilage to the base of skull. This part gives no branch.
* Petrous part :- It lies in bony carotid canal in the petrous temporal bone. It gives two branches (i)Caroticotympanic, and (ii) pterygoid.
* Cavernous part :- It runs through the medial wall of cavernous sinus. It gives three branches : (i) Meningeal branch, (ii) hypophyseal branch and (iii) cavernous branch.
* Cerebral part :- It is related to inferior surface of cerebrum. It gives following branches: (i) Ophthalmic artery,(ii) posterior communicating artery, (iii) anterior choroidal artery, (iv) anterior cerebral artery and (v) middle cerebral artery.

98. What is true about chorda tympani?

a) Postganglionic sympathetic

b) Preganglionic sympathetic

c) Preganglionic parasympathetic

d) Postgalglionic parasympathetic

Correct Answer - C
Chorda tympani arises from intratemporal part (in fallopion canal) of facial nerve.
* It carries preganglionic secretomotor fibers (not postganglionic) to submandibular and sublingual glands.
* It joins lingual nerve in infratemporal fossa.
* It carries taste sensations from anterior 2/3 of tongue.

99. Eustachian tube opens in middle ear in ?

a) Floor

b) Anterior wall

c) Superior wall

d) Posterior wall

Correct Answer - B

Ans. is 'b' i.e., Anterior wall

- The middle ear is shaped like a cube.
- When seen in the coronal section, the cavity of the middle ear is biconcave.
- The boundaries of the middle ear are as follows :

1. Roof or tegmental wall

- Separates the middle ear from the middle cranial cavity.
- It is formed by a thin plate of bone called tegmen tympani.

2. Floor or jugular wall

- Formed by a thin plate of bone which separates the middle ear from the superior bulb of the internal jugular vein.
- The floor also presents the tympanic canaliculus which transmits the tympanic branch of the glossopharyngeal nerve.

3. Anterior or carotid wall

- The uppermost part bears the opening of the canal of the tensor tympani.
- The middle part has the opening of the auditory tube.
- The inferior part of the wall is formed by a thin plate of bone which forms the posterior wall of the carotid canal. This plate separates the middle ear from the internal carotid artery.

4. Posterior or mastoid wall

- Superiorly, is the aditus through which the epitympanic recess

communicates with the mastoid antrum.

- Below it is the fossa incudis which lodges the short process of the incus.
- Below it is the pyramid giving attachment to the tendon of stapedius.
- Vertical part of the facial canal for facial nerve

5. Lateral or membranous wall

- Tympanic membrane alongwith the tympanic ring and sulcus.

6. Medial or labrynthine wall

- Promontory - rounded bulge produced by the first turn of the cochlea.
- Oval window - it is posterosuperior to the promontory. It is closed by the footplate of the stapes.
- Horizontal part of the facial canal - runs just above the oval window.
- Round window - posteroinferior to the promontory. It is closed by the secondary tympanic membrane.
- Processus cochleariformis - forms a pulley for the tendon of the tensor tympani.
- Prominence of the lateral semicircular canal - above the facial canal.

100. Rouviere nodes are situated in ?

a) Nasopharynx

b) Oral cavity

c) Retropharynx

d) Clavicular nodes

Correct Answer - C
Ans. is 'c' i.e., Retropharynx
The Rouviere's node is the most superior of the lateral group of the retropharyngeal lymph nodes, and is found at the base of the skull. The krewse's nodes are lymph nodes situated in the jugular foramen. Enlargement of these nodes compress on cranial nerves IX, X and XI, causing jugular foramen syndrome.

101. Passavants ridge is formed by ?

a) Palatoglossus

b) Superior constrictor

c) Salpingopharyngeus

d) Palatopharyngeus

Correct Answer - D
Ans. is 'd' i.e., Palatopharyngeus
Pharynx has two group of muscles *:?*
* Intrinsic muscles :- Stylopharyngeous, salpingopharyngeous, palatopharyngeous.
* Extrinsic muscles :- Superior constrictor, middle constrictor, inferior constrictor.
- All muscles of pharynx are supplied by cranial accessory through branches of vagus via pharyngeal plexus except stylopharyngeus which is supplied by glossopharyngeal.
- Inferior constrictor muscle has two parts :- (i) Thyropharyngeous with oblique fibres, and (ii) Cricophatyngeous with transverse fibres.
- Between these two parts of inferior constrictor exists a potential gap called Killan's dehiscence. It is also called the gateway to tear as perforation can occur at this site during esophagoscopy. It is also the site for herniation of pharyngeal mucosa in case of pharyngeal pouch.
- Upper fibers of palatopharyngeus constitute the Passavant's muscle which on contraction raises a ridge called Passavant's ridge on posterior wall of nasopharynx.

102. Lower limit of retropharyngeal space is at ?

a) C 7

b) Bifurcation of trachea

c) 4^{th} esophageal constriction

d) None

Correct Answer - B
Ans. is'b'i.e., Bifurcation of trachea
Retropharyngeal space is divided into two lateral spaces (space of gillette) by a fibrous band.
Retropharyngeal space is limited above by the base of skull and below where the alar fascia fuses with buccopharyngeal fascia at the level of T4 and carina (bifurcation of trachea).

103. Killian dehiscence is in ?

a) Superior constrictor

b) Inferior constrictor

c) Middle constrictor

d) None

Correct Answer - B
Ans. is 'b' i.e., Inferior constrictor
Inferior constrictor muscle has two parts :- (i) Thyropharyngeous with oblique fibres, and (ii) Cricopharyngeous with transverse fibres. Between these two parts of inferior constrictor exists a potential gap called Killan's dehiscence. It is also called the gateway to tear as perforation can occur at this site during esophagoscopy. It is also the site for herniation of pharyngeal mucosa in case of pharyngeal pouch.

104. Sensory supply of the palm is from which nerves -

a) Median nerve and Radial nerve

b) Radial nerve and ulnar nerve

c) Ulnar nerve and Median nerve

d) Musculocutaneous nerve and Radial nerve

Correct Answer - C
Ans. is'c'i.e., Ulnar nerve and Median nerve
(Rel BDC 5'h/e VoL I p. 108-111)
On Palm side:

- Lateral 2/3 of the palm and lateral three and half fibers → Median nerve.
- Medial 1/3 of the palm and medial one and half fingers → Ulnar nerve.

105.

Which of the following is not the part of ethmoid bone?

a) Agger nasi

b) Crista galli

c) Uncinate process

d) Inferior turbinate

Correct Answer - D
Ans. d. Inferior turbinate
Inferior turbinate is not the part of ethmoid bone.
`Lateral nasal wall has 3 bony projections called as turbinates or conchae. From below upwards, they are inferior, middle and superior turbinates. The inferior turbinate is a separate bone, while rest of the turbinates are part of ethmoidal labyrinths.'
The agger nasi air cells, are the most anterior ethmoidal air cells, lying anterolateral and inferior to the frontoethmoidal recess and anterior and above the attachment of the middle turbinate. They are located within the lacrimal bone and therefore have as lateral relations the orbit, the lacrimal sac and the nasolacrimal duct.'
The crista galli is a median ridge of bone that projects from the cribriform plate of the ethmoid bone. It is where the falx cerebri attaches anteriorly to the skull. The olfactory bulbs lie on either side of the crista galli on top of the cribriform plate.'
In the ethmoid bone, a curved lamina, the uncinate process, projects downward and backward from this part of the labyrinth; it forms a small part of the medial wall of the maxillary sinus, and articulates with the ethmoidal process of the inferior nasal concha.'

106. Which of the following is not supplied by the anterior division of mandibular nerve (V3)?

a) Temporalis

b) Medial pterygoid

c) Lateral pterygoid

d) Masseter

Correct Answer - B
B i.e. Medial pterygoid
Temporalis, messeter and lateral pterygoid musclesQ are supplied by *anterior division of mandibular nerve* whereas *medial pterygoid muscleQ* is supplied by the main trunk of mandibular nerve.

107. Nucleus ambiguus is not associated with which cranial nerve:

a) X

b) XI

c) IX

d) XII

Correct Answer - D
Ans. D: XII
Nucleus Ambiguus
Function:
* Motor innervation of ipsilateral muscles of the soft palate, pharynx, larynx and upper esophagus.
Pathway:
* Axons of motor neurons in the nucleus ambiguus course with three cranial nerves: C.N. IX (glossopharyngeal), C.N. X (vagus), C.N. XI (the rostral or cranial portion of spinal accessory) to innervate striated muscles of the soft palate, pharynx, larynx and upper esophagus.
Deficits:
* Lesion of nucleus ambiguus results in atrophy (lower motor neuron) and paralysis of innervated muscles, producing nasal speech, dysphagia, dysphonia, and deviation of the uvula toward the opposite side (strong side).
* No affection of the Sternocleidomastoid or Trapezius. These muscles are innervated by cells in the rostral spinal cord (caudal portion C.N. XI).

108.

Which of the following is NOT a branch of 1st part of maxillary artery?

a) Middle meningeal artery

b) Accessory meningeal artery

c) Inferior alveolar artery

d) Greater palatine artery

Correct Answer - D

Branches of maxillary artery:

The maxillary artery consists of three parts; mandibular part, pterygoid part, pterygopalatine part.

Branches of mandibular part:

- Inferior alveolar artery
- Middle meningeal artery
- Deep auricular artery
- Anterior tympanic artery
- Occasionally an accessory meningeal branch.

Branches of pterygoid part:

- Masseteric artery
- Deep temporal branches
- Pterygoid branches
- Buccal artery

Branches of pterygopalatine part:

- Posterior superior alveolar artery
- Infraorbital artery
- Descending palatine artery
- Greater palatine artery
- Lesser palatine artery
- Sphenopalatine artery

- Lateral posterior nasal arteries
- Posterior septal branches

109. All of the following are true about location of otic ganglia except:

a) Inferior to foramen ovale

b) Lateral to tensor veli palatini

c) Lateral to mandibular nerve

d) Anterior to middle meningeal artery

Correct Answer - C

Ans: C. Lateral to mandibular nerve

(Ref Gray 41/e p552. 40/e p543)

Mandibular nerve lies lateral to otic ganglion.

Ie., Ganglion lies medial to mandibular nerve.

Otic ganglion:

- Small, oval, flat reddish-grey ganglion.
- Situated just below foramen ovate.
- Peripheral parasympathetic ganglion located in the infratemporal fosse.
- Functionally associated with glossopharyngeal nerve & innervates parotid gland for salivation.
- Connected to chorda tympani nerve & to nerve of pterygoid canal.
- Pathways provide an alternate pathway of taste from anterior two-thirds of tongue.

110.

Cranial part of accessory nerve supplies all palatal muscles, EXCEPT?

a) Palatoglossus

b) Palato pharyngeus

c) Tensor veli palatini

d) Tensor veli tympani

Correct Answer - C
The cranial root of the accessory nerve is smaller than the spinal root. It exits the skull through the jugular foramen and unites for a short distance with the spinal root. Its fibers innervate the pharyngeal and palatal muscles, except tensor veli palatini.
Because the cranial part of accessory nerve (CN XI) leaves the jugular foramen as joining the CN X, it is sometimes considered part of the plexus as well
The tensor veli palatini is supplied by the medial pterygoid nerve, a branch of mandibular nerve, the third branch of the trigeminal nerve - the only muscle of the palate not innervated by the pharyngeal plexus

111. Passavant ridge ?

a) Superior constrictor and palatopharyngeus

b) Inferior constrictor and palatopharyngeus

c) Superior constrictor and palatoglossus

d) Inferior constrictor and palatoglossus

Correct Answer - A

Passavant ridge

- Near the superior margin of pharynx, a few fibres of superior constrictor blend with a band of muscle fibres belonging to the palatopharyngeus muscle.
- These fused fibres form a band or ring around the posterior wall and sidewalls of the nasopharyngeal isthumus.
- When the soft palate is elevated this muscle band appears as a ridge is known as passavant's ridge.

112. Which of the following laryngeal cartilage is hyaline?

a) Epiglottis

b) Comiculate

c) Cricoid

d) Cuneiform

Correct Answer - C

Ans. is 'c' i.e., Cricoid

Hyaline cartilages	**Elastic cartilages (do not ossify)**
Thyroid cartilage	Epioglottis
Cricoid cartilage	Corniculate
Basal part of arytenoid cartilage	Cuneiform
Processes of arytenoid	

113. Little's area is ?

a) Anteroinferior lateral wall

b) Anteroinferior nasal septum

c) Posteroinferior lateral wall

d) Posteroinferior nasal septum.

Correct Answer - B
Ans. is 'b' i.e., Anteroinferior nasal septum
Little's area is situated in the anterior inferior part of nasal septum, just above the vestibule.
Woodruff's plexus is situated in the posterior inferior part of lateral wall

114. Maxillary bone does not articulate with:

a) Ethmoid

b) Sphenoid

c) Frontal

d) Lacrimal

Correct Answer - B
Ans: B. Sphenoid
(Ref Gray's 41/e p484, 40/e p473-476)
Maxillary bone does not articulate with sphenoid.
Articulation of maxilla:
Each **maxilla articulates with nine bones:**

- **Two of cranium: Frontal & ethmoid.**
- **Seven of the face: Nasal, zygomatic, lacrimal, inferior nasal concha, palatine, vomer & adjacent fused maxilla.**
- Sometimes articulates with orbital surface & with lateral pterygoid plate of sphenoid.

115. Primary and secondary palates are divided by

a) Greater palatine foramen

b) Canine teeth

c) Alveolar arch

d) Incisive foramen

Correct Answer - D
D. i.e. Incisive foramen
The incisive foramen is dividing landmark between the primary & secondary palateQ; and anterior & posterior cleft deformities

116. Parotid duct opens opposite to:

a) Upper 1st molar

b) Upper 2nd molar

c) Upper 2nd premolar

d) Upper 1st premolar

Correct Answer - B
Ans. B: Upper 2nd molar

117. Multiple sinuses from infection of great toe is mainly caused by: *September 2007*

a) Tuberculosis

b) Actinomycetes

c) Trichosporum

d) Histoplasmosis

Correct Answer - B
Ans. B: Actinomycetes
Mycetoma is a chronic localized granulomatous inflammatory lesion common in the tropics and sub-tropics.
Multiple siAuses, soft tissue swelling and discharge of coloured granules characterize a mycetoma foot. Chronic sinuses discharging granules are caused by (1) Eumycetes (true fungi), (2) Schizomycetes, which includes

- *Actinomycosis* (aerobic higher filamentous bacteria) and
- *Botryomycosis* (bacterial infection).

- Actinomycosis is often caused by Actinomadura or Nocardia species wherein it gains entry after penetrating trauma (splinter, gravel or thorn prick).
Young males are commonly affected and 75% of the lesions occur in the lower limbs.
The disease slowly progresses from a nodule to multiple sinuses discharging coloured granules. Involvement of bone is late following dermal and soft tissue spread.
- Botryomycosis (a misnomer), a chronic suppurative infection is caused by bacteria involving skin or viscera . This rare condition mimics a deep mycotic infection and is often caused by

mimics a deep mycotic infection and is often caused by Staphylococcus or Pseudomonas species of bacteria. The feet and hands are commonly affected and penetrating trauma may be a predisposing factor. It usually presents as a nodule, sinus or ulcer, which is initially localized.

The diagnosis of actinomycosis is based on clinical findings, demonstration of characteristic granules and culture of the organism from a deep tissue biopsy.

Immunological studies (counter immuno electrophoresis and ELISA) are also used. Botryomycosis is diagnosed based on a positive gram's stain and culture; negative fungal cultures and demonstration of the characteristic botryomycotic granules at histopathology from a deep biopsy.

In endemic areas, subcutaneous swelling with sinuses should be considered as mycetoma unless proved otherwise. The differential diagnosis includes chronic osteomyelitis, tuberculosis and chronic abscesses.

118. Risorius is a muscle of ?

a) Mastication

b) Deglutition

c) Facial expression

d) Eye movement

Correct Answer - C
Ans. is 'c' i.e., Facial expression [Ref BDC Vol. III, 5th /e p. 57]
The risorius (also risorius muscle, latin: musculus risorius) is a muscle of facial expression located laterally to the mouth opening, which pulls the angle of the mouth laterally.
* Origin
 - The risorius originates from the masseteric fascia.
* Insertion
 - The risorius inserts into the skin of the angle of the mouth.
* Action
 - Upon activation the risorius pulls the angle of the mouth laterally.
 - Contractions of the risorius muscle produce facial expression of pleasure and laughter.
* Innervation
 - The risorius is innervated by the buccal branch of the facial nerve (CN VII).
* Blood supply
 - The risorius is mainly supplied by the superior labial branch of the facial artery.

119. Muscle causing flexion of hip ?

a) Biceps femoris

b) Psoas major

c) Gluteus maximus

d) TFL

Correct Answer - B
Ans. is 'b' i.e., Psoas major

120.

The thyrocervical trunk is a branch of which part of subclavian artery?

a) 1st

b) 2nd

c) 3rd

d) None

Correct Answer - A

Ans. 'a' i.e., 1st

Branches of the subclavian artery:?

1. 1st Part → Vertebral artery, internal thoracic artery, thyrocervical trunk, and on left side costocervical trunk.
2. 2nd Part → On right side costocervical trunk.
3. 3rd Part → Dorsal scapular artery.

121. Biphasic action potential of mixed nerve except?

a) All or none phenomenon

b) Two or more positive peaks

c) Refractory period

d) Recorded on surface

Correct Answer - B
Ans. is'b'i.e., Two or more positive peaks
Action potential when recorded by putting two electrodes on the surface of a neuron (instead of putting on surface and one intracellularly), shows a biphasic response, i.e. Biphasic action potential.
As the wave of depolarization reached the first electrode, this electrode becomes negative and an upward deflection (Peak) is recorded.
Vagus, Glossopharyngeal, Facial are mixed nerve.

122. Nucleus fasciculatus is seen in ?

a) Frontal lobe

b) Medulla

c) Temporal lobe

d) Midbrain

Correct Answer - B
Ans. is 'b' i.e., Medulla [Ref Quantitative Human physiology : An introduction p. 327]
It has not been mentioned in any textbook.
But according to the above mentioned reference nucleus fasciculatus is the other name of nucleus cuneatus.
"The sensory fibers of dorsal column travel in tracts, fasciculus gracilis and fasciculus Cuneatus in the Cord and these fibers make synapses with second order neurons in the nucleus gracilis and the nucleus fasciculatus". — Quantitative Human physiology.
Nucleus gracilis and nucleus fasciculus are found in the medulla.

123. Which of the following is an operculated sulcus ?

a) Calcarine

b) Collateral

c) Lunate

d) Central

Correct Answer - C
Ans. is 'c' i.e., Lunate
Operculated sulcus separates by its lips into two areas and contains a third area in the walls of the **sulcus** e.g. lunate **sulcus** is an **operculated sulcus**, separating the striate and parastriate areas.
Axial → Posterior part of calcarine sulcus
Limiting → Central sulcus Anterior part of calcarine sulcus
Operculated → Lunate sulcus
Complete → Collateral sulcus, Anterior part of calcarine sulcus

124. All the following are characteristics of oculomotor nerve except:

a) Carries parasympathetic nerve fibres

b) Supplies inferior oblique muscle

c) Enters orbit through the inferior orbital fissure

d) Causes constriction of pupil

Correct Answer - C
C i.e. Enters orbit through the inferior orbital fissure
Oculomotor nerve enters orbit through the superior orbital fissure.
The visceral motor component controls parasympathetic innervation (nerves related to involuntary actions) of the ciliary muscles and constrictor papillae, aiding in accommodation and pupillary light reflexes.
The III cranial nerve supplies all extraocular muscles except Lateral rectus and superior oblique muscle.

125. True about Corpus callosum :

a) Unite far area of two sides of brain

b) Connect two frontal lobe

c) Unite two hemisphere

d) All

Correct Answer - D
A i.e. Unite far area of two sides of brain; B i.e. Connect two frontal lobe ; C i.e. Unite two hemisphere

126. What are the cellular contents of cerebellar cortex?

a) Cortical cells

b) Glomus cells

c) Principle cells

d) Intercalated cells

Correct Answer - A
Ans.A Cortical cells.
CELLS IN CEREBRAL CORTEX:
Cortical cells:

- Majority are pyramidal cells
- Pyramidal cells - "Sine qua non" for cerebral cortex
- Axons of pyramidal cells leave the cortex
- Forms descending tract (e.g. Corticospinal, Corticobulbar etc).

127. All are lateral branches of abdominal aorta, EXCEPT

a) Right testicular artery

b) Left renal artery

c) Inferior mesenteric artery

d) Middle suprarenal artery

Correct Answer - C
C. i.e. Inferior mesenteric artery
Ovarian or Testicular artery is lateral branch of abdominal aorta and *uterine artery* is a branch of internal iliac artery (anterior division).
Lateral branches of abdominal aorta are - Inferior phrenic, Middle Suprarenal, Renal & Gonadal (testicular or ovarian) arteries.
Mnemonic - "Inferior MS Ruin Gonads"

128. Chamberlains line is ?

a) Palate to occiput

b) Palate to temporal

c) Palate to foramen magnum

d) Palate to parietal

Correct Answer - C
Ans. is 'c' i.e., Palate to foramen magnum [Ref: Atlas of radiographic measurement]
The Chamberlain line is drawn from the posterior surface of the hard palate to the tip of the opisthion (posterior aspect of the foramen magnum).
It is used to measure the distance of how much the odontoid tip extends above this line. If the tip of the dens extends > 3 mm above this line then it helps to recognize the presence of basilar invagination (a craniocervical junction abnormality where the tip of the dens project up into the foramen magnum)

129. Osseocartilagenous junction is present at ?

a) Nasion

b) Rhinion

c) Radix

d) Columella

Correct Answer - B
Ans. is 'b' i.e., Rhinion [Ref Textbook of general anatomy p. 10]
Nasion → The depression at the junction of nose with forehead.
Rhinion → The point located at the osseocartilagenous junction over the dorsum of the nose.
Radix → Junction between the frontal bone and nasal bone.
Columella → Column between the nostrils at the base of the nose..

130. Primordial germ cells are derived from:

a) Neural crest

b) Genital ridge

c) Somatopleuritic mesoderm

d) Yolk sac

Correct Answer - D

Formation of primordial germ cells

- Structures derived from neural crest are neurons of spinal posterior (dorsal) nerve root ganglia, neurons of sensory ganglia of the 5 to 10th cranial nerves, neurons and satellite cells of sympathetic ganglia etc.
- In the region where testes is to develop, the germinal epithelium gets thickened and is known as genital ridge.
- The cells of germinal epithelium proliferate and forms sex cords which gets converted into medullary cords and finally gets canalized to form seminiferous tubules
- Chorion is formed by the parital/ somatopleuric extraembryonic mesoderm (on the inside) and the overlying Trophoblast
- The cells of the ovaries and the testes, from which germ cells are formed, are believed to be segregated early in the life of the embryo.

131. Which of the following does NOT stimulate peripheral chemoreceptors:

a) Hypoxia

b) Hypocapnia

c) Acidosis

d) Low perfusion pressure

Correct Answer - B
B i.e. Hypocapnia

132. Peripheral and central chemoreceptors may both contribute to the increased ventilation that occurs as a result of which of the following?

a) A decrease in arterial oxygen content

b) A decrease in arterial blood pressure

c) An increase in arterial carbon dioxide tension

d) A decrease in arterial oxygen tension

Correct Answer - C
The central chemoreceptors located on or near the ventral surface of the medulla cause an increase in ventilation in response to an increase in PacO2 and to a lesser extent to a decrease in arterial pH because the blood brain barrier is relatively impermeable to hydrogen ions.
The peripheral chemoreceptors in the carotid bodies cause an increase in ventilation in response to an increase in PacO2 a decrease in arterial pH, and a decrease in PaO2. Neither the central chemoreceptors nor the carotid bodies are stimulated by a decrease in arterial blood pressure or O2 content.

133. **Transpulmonary pressure is the difference between:**

a) The bronchus and atmospheric pressure

b) Pressure in alveoli and intrapleural pressure

c) Atmosphere and intrapleural pressure

d) Atmosphere and intraalveolar pressure

Correct Answer - B

Transpulmonary pressure is the pressure difference between alveolar pressure and intrapleural pressure. Before the start of inspiration or at the end of expiration it is about +5cm H_2O. Positive transpulmonary pressure keeps the alveoli open.

- **Intrapleural pressure** is the pressure between two layers of pleura. It is about -5cm H_2O before the start of inspiration or at the end of expiration.
- **Alveolar pressure** is the pressure within the terminal air spaces. It is the sum of pleural pressure and elastic recoil pressure of the lung. It is atmospheric before the start of inspiration or at the end of expiration.
- **Transthoracic pressure** is the pressure difference between alveolar pressure and pressure at the body surface.

Ref: Fundamentals of Respiratory Physiology By A S Chakrabarty, Page 32

134. Difference in the amount of 0_2 inspired and CO2 expired ?

a) 20 ml/min

b) 50 ml/min

c) 75 ml/min

d) 100 ml/min

Correct Answer - B
Ans. B. 50 ml/min
250 ml of O2 enters the body per minute and 200 ml of CO2 is excreted.

135. Bohr effect is described as:
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a) Decrease in CO2 affinity of hemoglobin when the pH of blood rises

b) Decrease in CO2 affinity of hemoglobin when the pH of blood falls

c) Decrease in O2 affinity of hemoglobin when the pH of blood rises

d) Decrease in O2 affinity of hemoglobin when the pH of blood falls

Correct Answer - D
Ans. D: Decrease in O2 affinity of hemoglobin when the pH of blood falls
The decrease in $_{O2}$ affinity of hemoglobin when the pH of blood falls is called the Bohr effect and is closely related to the fact that deoxygenated hemoglobin (deoxyhemoglobin) binds H+ more actively than does oxyhemoglobin. The pH of blood falls as its CO, content increases, so that when the PCO_2 rises, the curve shifts to the right and the **$P_{5„}$** rises.

136. True statement relating to compliance of lung:

a) Increased by surfactant

b) Decreased in emphysema

c) At height of inspiration compliance is less

d) It can be measured by measuring intrapleural pressure at different lung volume

e) None

Correct Answer - A:C:D

Ans. (A) Increased by surfactant (C) At height of inspiration compliance is less (D) It can be measured by measuring intrapleural pressure at different lung volume

[Ref: Ganong 25th/629-32,24th/629-33; Guyton llth /473-75; A. K. Jain 5th/437]

Lung compliance:

- Measured by measuring intrapleural pressure at different lung volume.
- An important factor affecting the compliance of the lungs is the surface tension of the film of fluid that lines the alveoli.
- Deficiency of surfactant-less compliance; more surfactant-more compliance.
- Compliance decreases with the inflation of the lungs as more pressure is required to distend the already distended lung.
- The curve is shifted downward and to the right (compliance is decreased) by pulmonary congestion and interstitial pulmonary fibrosis; pulmonary fibrosis is a progressive disease of unknown

cause in which there is stiffening and scarring of the lung.

- The curve is shifted upward and to the left (compliance is increased) in emphysema.

137. Venous blood with high hematocrit is seen in ?

a) RBC high chloride

b) Plasma high Na

c) Plasma high HCO_3

d) RBC high K

Correct Answer - A
Ans. A. RBC high chloride
Hematocrit of venous blood is normally 3% greater than that of arterial blood.

138. Which of the following is/are effect of increased 2,3-DPG on oxygen-hemoglobin dissociation curve?

a) ↑ ed affinity of heamoglobin to oxygen

b) ↓ ed affinity of haemoglobin to oxygen

c) Left shift of oxygen-hemoglobin dissociation curve

d) Right shift of oxygen-hemoglobin dissociation curve

e) No change in oxygen-hemoglobin dissociation curve

Correct Answer - B:D

Ans. (B) ↓ ed affinity of haemoglobin to oxygen (D) Right shift of oxygen-hemoglobin dissociation curve

[Ref: Ganong 25th/e p. 610-41; Guyton's 12'h/e p.j56-57; A K lain 6'h/e p. 430]

* Oxygen-hemoglobin dissociation curve is 2,3 DPG in RBC.
* DPG is an optional by-product of the glycolytic pathway.
* DPG binds with deoxygenated hemoglobin but not with oxygenated hemoglobin.
* Raised DPG concentration releases oxygen from oxyhemoglobin by shifting the following reversible reaction to the right.

Mechanism:

* One molecule of DPG binds with one mole of deoxyhemoglobin.
* Hence an increase in DPG concentration shifts the oxygen-hemoglobin dissociation curve to the right.
* Thus 2,3 DPG causes delivery (unloading) of O, to the tissues.
* Fetal hemoglobin has considerably less affinity for 2,3 - DPG than does adult hemoglobin therefore fetal hemoglobin has a greater

affinity for oxygen than adult hemoglobin.
In human blood, the affinity of fetal hemoglobin for 2,3-DPG is only about 4O% that of adult hemoglobin.
This makes fetal hemoglobin behave as if 2,3-DPG levels are low.

139. Stability of alveoli is maintained by?

a) Lung compliance

b) Negative intrapleural pressure

c) Increase in alveolar surface area by the surfactant

d) Residual air in alveoli

Correct Answer - C
C i.e. Increase in alveolar surface area by the surfactant

140. Which of the following defines vital capacity?

a) Air in lung after normal expiration

b) Maximum air that can be expirated after normal inspiration

c) Maximum air that can be expirated after maximum inspiration

d) Maximum air in lung after end of maximal inspiration

Correct Answer - C

Ans. C. Maximum air that can be expirated after maximum inspiration

Vital capacity (VC):

- 4700 ml.
- Amount of air that can be exhaled with maximum effort after maximum inspiration (ERV+TV+IRV).
- Used to assess strength of thoracic muscles as well as pulmonary function.

141. Herring Breuer reflex is an increase in ?

a) Duration of inspiration

b) Duration of expiration

c) Depth of inspiration

d) Depth of expiration

Correct Answer - B
Ans. is 'b' i.e., Duration of expiration
The Hering-Breuer inflation reflex is an increase in the duration of expiration produced by steady lung inflation, and the Hering-Breuer deflation reflex is a decrease in the duration of expiration produced by marked deflation of the lung.

142. Daily pancreatic secretion ?

a) 1.5 L

b) 2.5 L

c) 5.0 L

d) 10 L

Correct Answer - A
Ans. A. 1.5 L

143. Microcirculation consists of ?

a) Capillaries

b) Capillaries venules and arterioles

c) Aorta

d) Arteries and veins

Correct Answer - B
Ans., B. Capillaries venules and arterioles
The microcirculation consists of arterioles to venules, i.e. arterioles, capillaries and venules.

144. Gas exchange in tissues takes place at ?

a) Artery

b) Capillary

c) Vein

d) Venules

Correct Answer - B
Ans. B. Capillary
Site of gas exchange = Capillaries

145. All of the following statements about third Heart sound (S3) are true, except:

a) Occurs due to rapid filling of the ventricles during atrial systole

b) Seen in in Constrictive Pericarditis

c) Seen in Atrial Septal Defect (ASD)

d) Seen in Ventricular Septal Defect (VSD)

Correct Answer - A

Answer *is* **A (Occurs due to rapid filling of the ventricles during atrial systole)**

Third heart sound occurs at the end of early rapid filling phase of the ventricle but not at the time of atrial systole. The heart sound associated with ventricular filling during atrial systole is the fourth heart sound (S4)

Fourth Heart sound occurs in association with an effective atrial contraction() (It is presumably caused by in-rush of blood into the ventricles when the atria contracts and hence it is also called the 'Atrial Heart Sound)

Pathological Third Heart Sound (S3) may be associated with ASD and VSD

`A pathological S3 is often present in large left to right shunts due to high flow across the mitral valve with VSD or patent ductus arteriosus and with high flow across the tricuspid valve with ASD. The presence of this sound in these conditions does not imply congestive heart failure, and such patients may maintain normal myocardial contractility for years after the S3 is detected'- 'Hurst: The Heart' 11th/271

Congenital Heart Diseases associated with Loud S3

- Ventricular septal Defect (VSD)()

- Patent Ductus Arteriosus (PDA)Q
- Atrial Septal Defect (ASD)Q

Pathological Third Heart Sound (S3) may be associated with Constrictive Pericarditis

Constrictive pericarditis is characterixstically associated with pericardial knock which is a distinct form of third heart sound (S3)

`Pericardial knock is S_3 that occurs earlier (0.1 to 0.12 after A2) and is higher pitched than normal. Its presence depends upon the restrictive effects of the adherent pericardium which halts diastolic filling abruptly'

146. Duration of 2" heart sound is ?

a) 0.15sec

b) 0.12 sec

c) 0.08 sec

d) 0.1 sec

Correct Answer - B
Ans.B. 0.12 sec

147. **True about volume receptors are all, EXCEPT:**

a) They are low pressure receptors

b) They provide afferents for thirst control

c) They are located in carotid sinus

d) They mediate vasopressin release

Correct Answer - C
The low-pressure baroreceptors are located in the venae cavae and the pulmonary veins, and in the atria. They are also called volume receptors. These receptors respond to changes in the wall tension, which is proportional to the filling state of the low pressure side of circulation (below 60mmHg). Their impulses regulate the secretion of antidiuretic hormone (ADH/Vasopressin), renin and aldosterone.

The low-pressure baroreceptors have both circulatory and renal effects; they produce changes in hormone secretion, resulting in profound effects on the retention of salt and water; they also influence intake of salt and water.

148. **Which one of the following is the CORRECT statement regarding coronary blood flow?**

a) Coronary blood flow is directly related to perfusion pressure and inversely related to resistance

b) Coronary blood flow is inversely related to perfusion pressure and directly related to resistance

c) Coronary blood flow is directly related to perfusion pressure and also to resistance

d) Coronary blood flow is inversely related to both pressure and resistance

Correct Answer - A

Coronary blood flow is directly related to the perfusion pressure (aortic diastolic pressure) and the duration of diastole. Because coronary flow drops to negligible values during systole, the duration of diastole becomes a limiting factor for myocardial perfusion during tachycardia.

Coronary blood flow is inversely proportional to coronary vascular resistance. Resistance is determined mainly by intrinsic factors—including metabolic products and autonomic activity—and by various pharmacologic agents. Damage to the endothelium of coronary vessels has been shown to alter their ability to dilate and to increase coronary vascular resistance.

Ref: Katzung B.G. (2012). Chapter 12. Vasodilators & the Treatment of Angina Pectoris. In B.G. Katzung, S.B. Masters, A.J. Trevor (Eds), Basic & Clinical Pharmacology, 12e.

149. Einthovens law -

a) I + III = II

b) I - III = II

c) I + II + III = 0

d) I + **III =** avL

Correct Answer - A
Ans. A. I + III = II
Einthoven's Law states that if the electrical potentials of any two of the three bipolar limb electrocardiographic leads are known at any given instant, the third one can be determined mathematically by simply summing the first two (but note that the positive and negative signs of the different leads must be observed when making this summation).
Thus the sum of the voltages in leads I and III equals the voltage in lead II.

150. Mechanism by which Ach decreases heart rate is by:

a) Delayed diastolic depolarization

b) Increase in plateau

c) Decrease preload

d) Increase afterload

Correct Answer - A
Ans: A. Delayed diastolic depolarization

- Acetyl choline decreases heart rate primarily by inhibiting the spontaneous depolarization of cells in SA node; also known as diastolic depolarization. This is achieved by inhibition of the funny current in the SA node.

Effect of acetylcholine on cardiovascular system

Heart rate decreases	Ach inhibits funny current generation in the pacemaker cells of SA node
AV conduction decreases	Ach blocks L type calcium channels in the AV node
Atrial contraction decreases > ventricular contraction	Atrium is supplied by cholinergic fibers more than the ventricles. Ach opens potassium channels and decreases cyclic AMP in the myocardial cells.
Vasodilation	Ach increases calcium in endothelial cells, which stimulates calcium dependent ENOS and releases NO which causes vasodilation.

151. Mean arterial pressure is calculated as:

a) (SBP + 2DBP)/ 3

b) (DBP + 2SBP)/ 3

c) (SBP + 3DBP)/ 2

d) (DBP + 3SBP)/ 2

Correct Answer - A
A i.e. (SBP + 2DBP) /3

152. Calculate the ejection fraction from the given volume pressure curve:

a) 40%

b) 50%

c) 55%

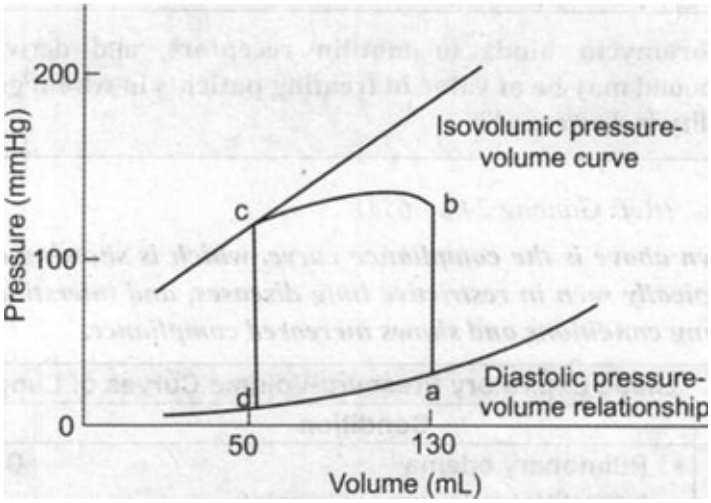
d) 60%

Correct Answer - D

Ans: D. 60%

(Ref Gunong 25/e p540 24/e p542)

- Ejection fraction calculated from the given volume pressure curve is 60%.



Pressure Volume Loop:

- ab: isovolumetric contraction
- bc: Ventricular contraction during systole
- cd: Isovolumetric relaxation.

Calculation:

- End-Diastolic Volume (EDV) (Point a) = 130 mL

- End Systolic Volume (ESV) (Point d) = 50 mL
- Stroke Volume (SV) = EDV–ESV = 80 mL
- Ejection Fraction = SV/EDV = 80/130 = 0.6 i.e. % EF = 60%.

153. Preload measures?

a) End systolic volume

b) End diastolic volume

c) Peripheral resistance

d) Stroke volume

Correct Answer - B
End diastolic volume REF: Guyton's physiology 22nd edition page 111, http://en.wikipedia.org/wiki/Preload_ %28cardiology%29
"For cardiac contraction, the preload is usually considered to be the end-diastolic pressure when the ventricle has become filled"
Quantitatively, preload can be calculated as

$$\frac{LVEDT.LVEDR}{2h}$$

Where LVEDP = Left ventricular end diastolic pressure, LVEDR = Left ventricular end diastolic radius (at the ventricle's midpoint), and h = thickness of the ventricle. This calculation is based on the Law of Laplace.

154. Stroke volume is increased by ?

a) Increased end-diastolic and end-systolic volumes

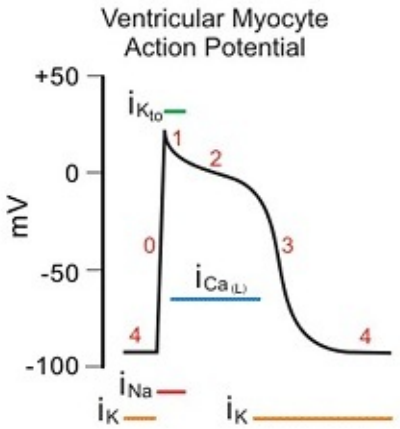
b) Decreased end-diastolic and end-systolic volumes

c) Increased end-diastolic volume and decreased end-systolic volume

d) Decrased end-diastolic volume and increased end-systolic volume

Correct Answer - C
Ans. is 'c' i.e., Increased end-diastolic volume and decreased end-systolic volume
The stroke volume is the amount of blood pumped out by left ventricle in each stroke.
Stroke volume is given by the difference between end-diastolic ventricular volume (the volume of blood in the left ventricle at the end of diastole; normal 120 inl) and end-systolic ventricular volume (the volume of blood at the end of systole; normal 50 ml).
Stroke volume (70 ml) = End-diastolic ventricular volume (120 ml) - End-systolic ventricular volume (50 ml)

155. The plateau phase of this graph is due to:



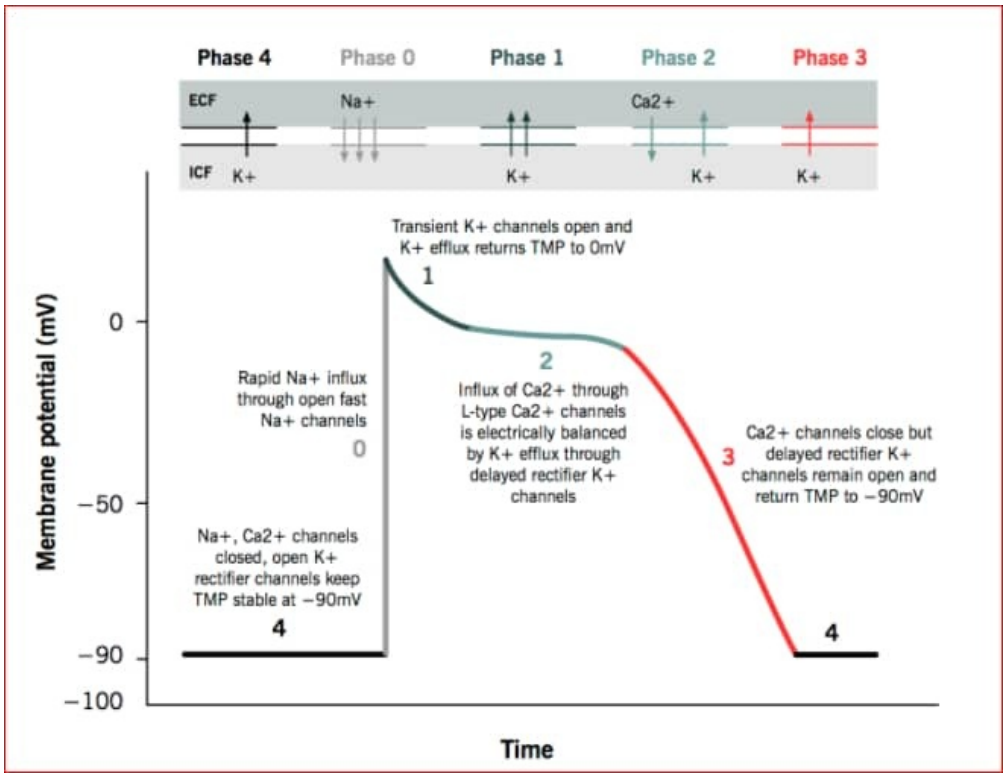
a) The movement of fewer sodium ions across the cell membrane

b) The calcium channels remaining open longer than the sodium channels

c) The increased membrane permeability to potassium ion

d) A decrease in the amount of calcium diffusing across the membrane

Correct Answer - B
Ans: B.)The calcium channels remaining open longer than the sodium channels.
Action potential of cardiac muscles:



Phase 2 / "Plateau phase":

*** Calcium channels open and fast potassium channels close.**

* A brief initial repolarization occurs.

Why plateau-shaped?

* Action potential then plateaus as a result of,

- Increased calcium ion permeability

- Decreased potassium ion permeability.

Events during phase 2:

* The voltage-gated calcium ion channels open slowly during phases 1 and 0, and calcium enters the cell. Potassium channels then close, and the combination of d**ecreased potassium ion efflux and increased calcium ion influx causes the action potential to plateau**

Note on other phases:

1. Phase 0 / Depolarization:

* Fast sodium channels open.

* When the cardiac cell is stimulated and depolarizes, the membrane potential becomes more positive.

* Voltage-gated sodium channels (fast sodium channels) open and permit sodium to rapidly flow into the cell and depolarize it.

* The membrane potential reaches about +20 millivolts before the sodium channels close.

2. Phase 1 / "Initial Repolarization":

* Fast sodium channels close.
* Cellular repolarization starts, and potassium ions leave the cell through open potassium channels.

3. Phase 3 / "Rapid Repolarization":

* Calcium channels close and slow potassium channels open.
* The closure of calcium ion channels and increased potassium ion permeability.
* This permits potassium ions to rapidly exit the cell, ends the plateau and returns the cell membrane potential to its resting level.

4. Phase 4 / "Resting membrane potential":

* Averages about "−90 millivolts"

156. Vasoconstriction in skin ?

a) Sympathetic

b) Parasympathetic

c) Wheal and flare

d) Warm climate

Correct Answer - A
Ans. A. Sympathetic
Sympathetic stimulation acting via alpha 1 and 2 are vasoconstrictor to the skin arterioles.

157. Normal interstitial pressure is ?

a) 10 to 15 mmHg

b) -5 to 0 mmHg

c) 20 to 30 mmHg

d) -10 to -20 mmHg

Correct Answer - B
Ans. B. -5 to 0 mmHg
Normal interstitial fluid hydrostatic pressure (or simply interstitial pressure) is usually -1 mHg.
However it varies according to tissues and ranges from -5 mmHg to -1 mmHg.
It is slightly subatmospheric in most of the tissues.

158. Striatum damage affects primarily ?

a) Procedural memory

b) Short term memory

c) Long term memory

d) Explicit memory

Correct Answer - A

Ans. A. Procedural memory

Procedural memory is a type of implicit memory that enables us to carry out commonly leaned tasks without consciously thinking about them, e.g., riding a bike, tying a shoe or washing dishes.

Procedural memory likely uses a different part of brain than episodic memory - with brain injury you can lose one’s ability without losing other.

That's why a person who has experienced amnesia and forget much about his or her personal life often retains procedural memory i.e., how to drive a car or use a fork etc.

Striatum (a part of basal ganglia) is responsible for procedure memory.

159. Somatosensory cortex lesion will cause ?

a) Pain

b) Temperature

c) Localization

d) Vibration

Correct Answer - C
Ans, C, Localization
Cortical lesions do not abolish all the somatic sensations. Cortical anesthesia mainly involve loss of proprioception and tactile sensations (fine touch, two point discrimination, astereognosis or stereo anesthesia.
Pain and temperature are least affected, but they are poorly localization.

160. Setting posture before planned movement ?

a) Premotor cortex

b) Motor cortex

c) Frontal

d) Supplementary motor cortex

Correct Answer - A

Ans. A. Premotor cortex

The premotor cortex function is still incompletely understood, but it may be concerned with setting posture at the start of a planned movement and with getting the lndividual prepared to move.

It is most involved in control of proximal limb muscles needed to orient the body for movement.

161. **All the following features are seen in neurons from dorsal root ganglia, EXCEPT:**

a) They are multipolar

b) They contain lipofuscin granules

c) They have centrally located nuclei

d) They are derived from neural crest cells

Correct Answer - A
Dorsal root ganglion consist of sensory neurons which are pseudounipolar and have no synaptic connections in the ganglion. They are classified as pseudounipolar because it lacks dendrites and has a single axon that bifurcate into a centrally efferent branch that functions as a dendrite to carry afferent sensory signals.

162. Neurons in sympathetic ganglia are ?

a) Unipolar

b) Bipolar

c) Pseudounipolar

d) Multipolar

Correct Answer - D
Ans, d. Multipolar
Ventral, lateral and dorsal horns of spinal cord and sympathetic chain ganglia contun multigolar neuron, whereas dorsal root ganglia contains pseudounipolar neurons.

163. Pt. is able to recognise person by name but not by face. Lesion is in ?

a) Post parietal region

b) Occipital

c) Frontal lobe

d) Temporal lobe

Correct Answer - D

Ans. D. Temporal lobe

An important part of the visual input goes to the inferior temporal lobe, where representations of objects, particularly faces are stored. In humans, storage and recognition of faces is more strongly represented in the right inferior temporal lobe in right-handed individuals.

164. CSF/plasma glucose ratio is ?

a) 0.2 - 0.4

b) 0.6 - 0.8

c) 1.2 - 1.6

d) 1.6 - 2.2

Correct Answer - D
Ans. D. 1.6 - 2.2

165. Burning pain is carried by which type of fibres ?

a) A alpha

b) A delta

c) A beta

d) C

Correct Answer - D
Ans. D. C
Pain is transmitted via two fiber types:
* Thinly myelinated A delta fibers (2-5m in diameter) which conduct at rates of 12-30 m/s.
* Unmyelinated C fibers (0.4-1.2m in diameter) which conduct at low rates of 0.5-2 m/s.
- Thermo receptors also span these two flber types.
- Cold receptors are on dendritic endings of A delta fibers and C fibers, whereas warmth (heat) receptors lue on C fibers.

166. A man slept with head over forearm, next morning he complains of tingling, numbness over forearm. It is caused by ?

a) Sensitivity to hypoxia is A>B>C

b) Sensitivity to pressure is A>B>C

c) Sensitivity to hypoxia is C>B>A

d) Sensitivity to pressure is B>A>C

Correct Answer - C
Ans.C . Sensitivity to hypoxia is C>B>A
Type C fibers (Type IV Lloyd & Hunt) are least susceptible to hypoxia'

167. Transducin is a protein found in:

a) Glomerulus

b) Retina

c) Skeletal muscle

d) Adrenal medulla

Correct Answer - B
Retina REF: Ganong 22nd edition, chapter 8,
http://en.wikipedia.org/wiki/Transducin
Transducin (also called Gt) is a heterotrimeric G protein that is naturally expressed in vertebrate retina rods and cones.
Mechanism of action: Heterotrimeric Transducin (alpha-beta-gamma subunits) is activated by a conformational change in rhodopsin due to the absorption of a photon by rhodopsin's active group retinal. Activation causes the GDP bound to the alpha subunit to be exchanged with GTP from solution and results in activated alpha dissociating from beta-gamma.
Active Transducin-alpha then causes cyclic GMP Phosphodiesterase to increase its activity, thereby lowering the concentration of cGMP, an intracellular second-messenger molecule. Decrease in cGMP concentration leads to the closure of cGMP-regulated Na+ and Ca2+ ion channels and a hyperpolarized membrane potential. This chain of signaling events is also called "the vertebrate photo transduction cascade"

168. Lesion of preoptic nucleus of hypothalamus causes?

a) Hyperphagia

b) Hyperdypsia

c) Hyperthermia

d) Hyperglycemia

Correct Answer - C
Ans. C. Hyperthermia
Preoptic nucleus is concerned with regulation of body temperature. Therefore, its lesion will result in defectivetemperature

169. Shivering is controlled by:
September 2012, March 2013

a) Dorsomedial nucleus

b) Posterior hypothalamus

c) Perifornical nucleus

d) Lateral hypothalamic area

Correct Answer - B

Ans. B i.e. Posterior hypothalamus

Shivering/Shuddering

- It is a bodily function in response to **early** hypothermia in warm-blooded animals.
- When the core body temperature drops, the shivering reflex is triggered to maintain homeostasis.
- Muscle groups around the vital organs begin to shake in small movements in an attempt to create warmth by expending energy.
- Shivering can also be a response to a fever, as a person may feel cold, though their core temperature is already elevated.
- Located in the posterior hypothalamus near the wall of the third ventricle is an area called the primary motor center for shivering.
- This area is normally inhibited by signals from the heat center in the anterior hypothalamic-preoptic area but is excited by cold signals from the skin and spinal cord.

170.

Sodium channels are maximum in which part of neuron ?

a) Soma

b) Axon hillock

c) Dendrites

d) Axon

Correct Answer - B

Ans. is'b'i.e., Axon hillock

- In a motor neuron, the axon hillock and the initial segment of axon have the lowest threshold for excitation.
- This is because they have a much higher intensity of voltage gated sodium channel.

171. The distance by which two touch stimuli must be separated to be perceived as two separate stimuli is greatest at ?

a) The lips

b) The palm of the hand

c) The back of scapula

d) The dorsum of the hand

Correct Answer - C

Ans. C. The back of scapula

The magnitude of two point discrimination thresholds varies from place of place on the bodyis smallest where touch receptors are most abundant.

stimulation points on the back must be separated by at least 65 mm before they can be distinguished as separate, whereas on the fingertips two stimuli ass recognized if they are separated by as little as 2 mm.

172. Purkinje fibres are inhibitory for ?

a) Deep cerebellar nuclei

b) Climbing fibre

c) Basket cells

d) Spinocerebellar tracts

Correct Answer - A

Ans. A. Deep cerebellar nuclei

After complex inhibiting and excitatory interactions of various fibers and cells in the cortex, the output of cerebellar cortex, is projected to deep cerebellar nuclei by axons of pyramidal cells (only output cells of cerebellar cortex).

The output of the Purkinje cells is inhibitory in the deep cerebellar nuclei.

However, the output of deep cerebellar nuclei to the brain stem and thalamus is always excitatory because, beside inhibitory inputs of purkinje cells, deep cerebellar nuclei also receive excitatory inputs from afferent mossy and climbing fibers which usually are more prominent.

173. Neurotransmitter involved in nigrostriatial pathway is?

a) Serotonin

b) Dopamine

c) Cholinergic

d) Adrenergic

Correct Answer - B
Ans. B. Dopamine
Dopaminergic nigrostriatal projection from the substantia nigra pars compacta (sNpc) to the striatum Caudate nucleus and putrrnen) and corresponding GABAergic proiection from striatum to substantia nigra pars reticulate (SNPR).
Dopamine is the major neurotransmitter in substantia nigra.

174. Loss of proprioception & fine touch ?

a) Anterior spinothalamic tract

b) Lateral spinothalamic tract

c) Dorsal column

d) Corticospinal tract

Correct Answer - C
Ans. C. Dorsal column

175. True about spinocerebellar tract is?

a) Equilibrium

b) Smoothens and coordinates movement

c) Learning induced by change in vestibulo ocular reflex

d) Planning and programming

Correct Answer - B

Ans. B. Smoothens and coordinates movement

- Spinocerebellum is concerned with smoothening and coordination of movements.
- It achieves this by getting a moment to moment report by spinocerebellar tract.

176. Vomiting centre is situated in the:
September 2008

a) Hypothalamus

b) Midbarin

c) Pons

d) Medulla

Correct Answer - D
Ans. D: Medulla
Vomiting is believed to be controlled by two distinct brain centres—the vomiting centre and the chemoreceptor trigger zone—both located in the medulla oblongata.
The vomiting centre initiates and controls the act of emesis, which involves a series of contractions of the smooth muscles lining the digestive tract

177. Chemoreceptors are located in which area?

a) Medulla

b) Arch of aorta

c) Bifurcation of carotid artery

d) All of the above

Correct Answer - D
Ans. is'd'i.e., All of the above

- Central chemoreceptors - Ventral Surface Of Medulla.
- Peripheral chemoreceptors - At bifurcation of common carotid artery (carotid body) and arch of aorta (aortic bodies)

178. Salty tase is due to?

a) Ca^{+2}channels

b) Na^{+} channels

c) G-protein

d) H^{+} channels

Correct Answer - B
Ans, B. Na^{+} channels
Salty-tastingsubstances depolarize taste cells by activating amiloride-sensitive Na^{+} channels.

179. Resting membrane potential in nerve fibre

a) Is equal to the potential of ventricular muscle fibre

b) Can be measured by surface electrodes

c) Increases as extra cellular K+ increases

d) Depends upon K+ equilibrium

Correct Answer - D
D i.e. Depends on potassium ion equilibrium

180. Epinephrine reduces insulin by ?

a) Alpha action predominantly

b) Beta action predominantly

c) Alpha and beta

d) Muscarinic receptors

Correct Answer - A
Ans. A. Alpha action predominantly
Epinephrine decreases insulin release via alpha-2 action as pancreatic beta-cells has alpha-2 receptors.

181. Adrenaline effects insulin by?

a) Stimulation of alpha cells

b) Stimulation of beta cells

c) Stimulation of delta cells

d) Stimulation of g cells

Correct Answer - B
Ans. B. Stimulation of beta cells
Adrenaline decreases insulin secretion by acting on alpha-2 receptors on beta-cells ofpancreas.

182. Smooth muscle physiology different from skeletal muscle

a) K^+ requires for contraction

b) Ca^{2+} required for contraction

c) Troponin is absent

d) Myosin is required for contraction

Correct Answer - C
Ans. is 'c' i.e., Troponin is absent
* Troponin is absent in smooth muscle but required in skeletal muscles for contraction.
* Ca^+ and Myosin are required by both smooth muscles and skeletal muscles.
* K^+ has no direct role in the contraction of smooth muscle and skeletal muscle.
Smooth muscle contraction
* In smooth muscle, there is no troponin. Therefore calcium initiates contraction through a mechanism different from that employed by skeletal muscle. Smooth muscle contains a calcium-binding protein called calmodulin. An increase in cytoplasmic (sarcoplasmic) calcium leads to its binding to calmodulin. The calcium-calmodulin complex activates myosin kinase, also called myosin light chain kinase (MLCK). MLCK is a phosphorylase which phosphorylates a light chain belonging to myosin chain, often called *cross-bridge phosphorylation.* The phosphorylated myosin head interacts with actin, i.e., cross-bridging of myosin with actin. The cross-bridging leads to contraction.
***** The reversal of contractile response depends on a reduction in

sarcoplasmic calcium by calcium pumps in the sarcoplasmic reticulum membrane and sarcolemma which pump calcium into the sarcoplasmic reticulum and extracellular fluid respectively. Reduction in cytoplasmic (sarcoplasmic) calcium level activates an enzyme myosin phosphatase. Myosin phosphatase dephosphorylates the myosin head, thereby terminating the actin-myosin interaction and produces relaxation.

So, calcium influx has two functions in smooth muscles : -

* Generation of action potential
* Essential for contraction initiation (Excitation contraction coupling)

- It is interesting to know that although dephosphorylation of myosin head is necessary for relaxation, the dephosphorylation of myosin does not necessarily lead to the relaxation of the smooth muscle. This is due to the latching effect, i.e., myosin bridges hold on to the actin filament like a latch. Due to this smooth muscle contracts, and it can maintain its contraction for a prolonged period (sustained contraction) for a long period with minimal expenditure of energy → Characteristic feature of smooth muscle.
- As with skeletal, muscle ATP is required which is hydrolyzed by myosin head which has ATPase activity (In a similar way as in skeletal muscle).

183. Motor march is seen in ?

a) Axontemesis

b) Neurotemesis

c) Neuropraxia

d) Nerve regeneration

Correct Answer - A
Ans. A. Axontemesis
Motor march (sequential reinervation of muscles from proximal to distal) is seen in axontemesis.
In neuroPraxiathereis no anatomic disruption, so motor march is not seen.
In neurotemesis there is no recovery, thus no motor march'

184. When the tension in a muscle fibre is maximum, its length is called as ?

a) Equilibrium length

b) Optimum length

c) Initial length

d) None

Correct Answer - B
Ans. B. Optimum length
Upto a limit greater the initial length (i.e., length at relaxed-state) greater is the force of contraction.
I.e., there is an optimal length, at which the force generated by a muscle is maximal'

185. Tetanic contraction is due to accumulation of ?

a) Na^+

b) Ca^+

c) K^+

d) Cl?

Correct Answer - B

Ans. B. Ca^+

Tetanic contraction is aboutfour times the twitch tension,
Following theory has been put forward for this higher tension generated during muscle tetanus:-
During a single twitch, the amount of Ca+2 is released into sarcoplasm is not enough to produce tetanic tension.
When the muscle is stimulated in rapid succession, Ca+2 comes out into the sarcoplasm with each stimulus and there is a progressive accumulation of Ca+2, in the sarcoplasm.
Tetanic tension is reached when sarcoplasmic Ca+2 levels reach their maximum.

186. **Which of the following is NOT TRUE about CSF?**

a) Removal of CSF during dural tap causes intense intracranial headache

b) Normally contain no neutrophils

c) Formed by arachnoid villi within the ventricles

d) pH is less than that of plasma

Correct Answer - C

The CSF is formed in the choroid plexuses and the remainder is formed around blood vessels and along ventricular walls. CSF fills the ventricles and subarachnoid space. In humans, the volume of CSF is about 150 mL and the rate of CSF production is about 550 mL/d. Thus the CSF turns over about 3.7 times a day. The composition of CSF is essentially the same as that of brain extracellular fluid (ECF), which in living humans makes up 15% of the brain volume. pH (7.31 - 7.34) slightly less than plasma (7.35 - 7.45). CSF contain no neutrophils. Its differential count is: Lymphocyte - 60-70%, Monocytes - 30-50%, Neutrophils - None.

Ref: Barrett K.E., Barman S.M., Boitano S., Brooks H.L. (2012). Chapter 33. Circulation through Special Regions. In K.E. Barrett, S.M. Barman, S. Boitano, H.L. Brooks (Eds), Ganong's Review of Medical Physiology, 24e.

187. During acclimitisation, decreased sweating is due to down regulation of ?

a) Epinephrine receptors

b) Norepinephrine receptors

c) Acetylcholine receptors

d) Dopamine receptors

Correct Answer - C
Ans. C. Acetylcholine receptors
Examiner just wants to know the receptors which are present in sweat gland.
Sweatingis under the control of sympathetic system. But the neurotransmitter is acetylcholine which acts on cholinergic sympathetic receptors.

188. Substance that is completely reabsorbed from the kidney?

a) Na^+

b) K^+

c) Urea

d) Glucose

Correct Answer - D
Ans. D. Glucose
On a normal diet maximum solutes are reabsorbed almost completely: - Glucose, Aminoacids & HCO3-: 100%

189. Substrate which is both secreted & filtered ?

a) Uric Acid

b) Glucose

c) Urea

d) Na^+

Correct Answer - A

Ans, A. Uric Acid

Substances which are both secreted and filtered are K^+, uric acid and creatinine.

190. ANP acts at which site ?

a) Glomerulus

b) Loop of Henle

c) PCT

d) Collecting duct

Correct Answer - D
Ans. D. Collecting duct
The atrial natriuretic peptides (ANPs) are present as granules in the atrial muscle cells.
ANP is released in response to increased plasma
Na+ concentration.
In general, the effects of ANP are physiologically antagonistic to those of angiotensin II.
ANP causes natriuresis due to increased GFR by relaxing mesangial cells of glomerulus.
ANP decreases the Na+ reabsorption from the distal tubule and collecting duct.
ANP decreases the secretion of renin, aldosterone, and ADH.
In addition, NP also relaxes the vascular smooth muscle in arterioles and venules and therefore lowers BP.

191. As fluid comes down the PCT, what is true ?

a) Concentration of urea falls

b) Concentration of HCO3- falls

c) Concentration of Na' increases

d) Concentration of inulin decreases

Correct Answer - D
Ans. D. Concentration of inulin decreases

192. Which of the following is most important in sodium and water retention ?

a) Rennin angiotensin system

b) ANP

c) BNP

d) Vasopressin

Correct Answer - D
Ans.D. Vasopressin
Despite its effect on Na+ and water reabsorption, aldosterone is a weak regulator of body Na, and water balance, the major regulator being the 'thirst-ADH' mechanism.
Aldosterone is the sole regulator of external potossium balance".

193. Cephalic phase of gastric secretion ?

a) 20%

b) 70 %

c) 10%

d) 100%

Correct Answer - A
Ans. A. 20%
Cephalic phase accounts for 20% of gastric acid secretion and gastric phase accounts 70-80% of gastric acid secretion.

194. Cephalic phase of gastric secretion ?

a) On food entering stomach

b) On food entering intestine

c) On seeing food

d) On stress

Correct Answer - C
Ans. C. On seeing food
The cephalic phase of gastric secretion occurs even before food enters the stomach, especially while it is being eaten.
It results from the sight, smell, thought, or taste of food, and the greater the appetite, the more intense is the stimulation.

195. Gastric secretion is :

a) Inhibited by curare

b) Stimulated by nor adrenaline

c) Increased by stomach distention

d) Stimulated by an increase in tonic activity

Correct Answer - C
C i.e. Increased by stomach distension

196. Which inhibits gastric secretion ?

a) Secretin

b) Insulin

c) High gastric pH

d) Calcium

Correct Answer - A
A i.e. Secretin
Gastrin is a hormone which is *produced by G-cells in the lateral wall of glands in the antral portion of gastric mucose.* It is also found in *pancreatic islets in fetal life, gastrinomas of pancreas,* and *pituitary glandQ,* hypothalamus, medulla oblongata and in vagus & sciatic nerves.

197. Motilin secretion decreased in ?

a) Thirsty

b) Starving

c) Ingested meal

d) Interdigestive state

Correct Answer - C
Ans. C. Ingested meal
When a meal is ingested, secretion of motilin is suppressed until digestion and absorption are complete.

198. Which is maximally absorbed from GIT ?

a) Pentose

b) Hexose

c) Diasaccharide

d) Polysaccharide

Correct Answer - B
Ans. B. Hexose
Hexoses are rapidly absorbed across the wall of the small intestine.

199. Pancreatic lipase hydrolyses ester linkage of triacid glycerides at position?

a) 1 & 2

b) 1 & 3

c) 2 & 3

d) Only 3

Correct Answer - B

Ans. B. 1 & 3

Most fat digestion therefore begins in the duodenum, pancreatic lipase being one of the most important enzymes involved.

This enzyme hydrolyzes the 1- and 3-bonds of the triglycerides (triacylglycerols) with relative ease but acts on the 2- bonds at a very low rate, so the principal products of its action are free fatty acids and 2- monoglycerides (2-monoacylglycerols).

It acts on fats that have been emulsified.

200. Gastric secretions are essential for absorption of -

a) Cobalmin

b) Fat

c) Thiamine

d) Folic acid

Correct Answer - A
Ans. A. Cobalmin
Vitamin B12 is absorbed in the ileum.
This vitamin binds to intrinsic factor, a protein secreted by the stomach, and the complex is absorbed across the ileal mucosa.

201. Effect of aceytylcholine on LES ?

a) Contraction

b) Relaxation

c) No effect

d) Contraction followed by relaxation

Correct Answer - A

Ans. A. Contraction

This barrier against reflux of the harmful gastric juice (pepsin and HCD is strengthened when the splincter pressure is raised by-

1. Acetylcholine
2. Adrenergic agonists
3. Gastrin
4. Motilin
5. Somatostatin
6. Substance P
7. Histamine
8. PGF 2-alpha.
9. Protein rich food
10. High intraabdominal pressure.

202. Ptylin is secreted by ?

a) Gastric gland

b) Salivary gland

c) Duodenal gland

d) Pancreatic gland

Correct Answer - B
Ans. B. Salivary gland
Salivary amylase is also called ptylin which is secreted in saliva by salivary gland.

203. PGs in semen are secreted by ?

a) Prostate

b) Seminal vesicle

c) Sperms

d) Testes

Correct Answer - B
Ans. B. Seminal vesicle

204. 17 OH steroid ?

a) Androgen

b) Progesterone

c) Estrogen

d) None

Correct Answer - B
Ans. B. Progesterone

205. GLUT2 is present mainly in ?

a) Beta cells of pancreas

b) Placenta

c) Skeletal muscle

d) Cardiac muscle

Correct Answer - A
Ans. A. Beta cells of pancreas

206. Glucose transporter involved in insulin stimulated glucose transport is GLUT ?

a) 1

b) 2

c) 3

d) 4

Correct Answer - D
Ans, D. 4

207. Insulin is essential for glucose entry in?

a) Muscle

b) Cortical neurons

c) Renal tubular cells

d) Beta cells of pancreas

Correct Answer - A
Ans. A. Muscle
Glucose enters cells by facilitated diffusion or, in the intestine and kidneys, by secondary active transport with Na^+.
In muscle, adipose, and some other tissues, insulin stimulates glucose entry into cells by increasing the number of glucose transporters In the cell membranes.

208. Wolff–Chaikoff effect is due to?

a) Suppression of TSH secretion

b) Decreased iodination of MIT

c) Decreased T_3 to T_4 conversion

d) Iodine intake

Correct Answer - D
Ans. D. Iodine intake
Iodine is the fastest acting thyroid inhibitor.
The most important action is inhibition of hormone release (thyroid constipation), but all facets of thyroid synthesis may be affected.
Excess iodide inhibits its own transport in thyroid cells and may alter the redox potential of cells, thus interfering iodination reduced T3/T4 synthesis (**Wolff**–**Chaikoff effect**).

209. Major adrenal androgen is ?

a) Testosterone

b) 11-hydroxy derivative of androstenedione

c) 17-ketosteroid dehydroepiandrosterone

d) Cortisol

Correct Answer - C
Ans. C. 17-ketosteroid dehydroepiandrosterone
The major adrenal androgen is the l7-ketosteroid dehydroepiandrosterone, although androstenedione is also secreted.
The major androgen of testis is testosterone.

210. Diurnal variation of ACTH depends on ?

a) Suprachiasmatic nucleus

b) Supraoptic nucleus

c) Ventrolateral nucleus

d) Thalamus

Correct Answer - A
Ans. A. Suprachiasmatic nucleus
The biologic clock responsible for the diurnal ACTH rhythm is located in the suprachiasmatic nuclei of the hypothalamus.

211. Hypothalamus increases release of all hormones from the pituitary except ?

a) TSH

b) FSH

c) CRH

d) Prolactin

Correct Answer - D
Ans, D. Prolactin
For most of the anterior pituitary hormones.
It is the releasing hormone that are important but prolactin is mainly under the inhibitory control.

212. 1st response to hypoglycemia ?

a) Decreased insulin

b) Increased glucagon

c) Increased cortisol

d) Increased nor epinephrine

Correct Answer - A
Ans. A. Decreased insulin
Decreased insulin is the first response followed successively by increase in glucagon, epinephrine, cortisol and GH.

213. Velocity of human sperm -

a) 1-3 mm/min

b) 4-6 mm/min

c) 6-9 mm/min

d) 10-13 mm/min

Correct Answer - A
Ans. A. 1-3 mm/min
Human sperm move at a speed of - 3mm/min through the female genital tract.
Sperms reach uterine tubes 30-60 minutes after copulation.

214. Acidophils secrete

a) GH

b) TSH

c) ACTH

d) FSH

Correct Answer - A
Ans. A . GH
Acidophils of the anterior pituitary secretes growth hormone and prolactin.

215. Vasopressin is secreted by

a) Supraoptic

b) Preoptic

c) Paraventricular

d) Posterior nucleus

Correct Answer - A
Ans. A. Supraoptic
ADH is formed primarily in the supraoptic nuclei, whereas oxytocin is formed primarily in the paraventricular nuclei".

216. Growth hormone level decreased in

a) Hypoglycemia

b) Fasting

c) Sleep

d) Exercise

Correct Answer - C
Ans. C. Sleep
REM sleep decreases GH secretion whereas Slow-wave sleep (N3 of NREM) causes an increase in GH secretion.

217. Pituicytes are seen in ?

a) Anterior lobe

b) Posterior lobe

c) Intermediate lobe

d) All

Correct Answer - B
Ans. B. Posterior lobe
Pituicytes are glial cells of posterior pituitary.

218. Size of sperm ?

a) 100 microns

b) 65nm

c) 100 nm

d) 65 microns

Correct Answer - D
Ans. D. 65 microns

219. cAMP action mediates all except ?

a) Glucagon

b) Follicle stimulating hormone

c) Leutinizing hormone

d) Estrogen

Correct Answer - D
Ans. D. Estrogen

220. In Thyroid follicle for how long Thyroxine is stored?

a) 2-3 weeks

b) 2-3 days

c) 2-3 months

d) 2-3 years

Correct Answer - C
Ans. C. 2-3 months
Thyroid hormones are stored in the follicles in an amount sufficient to supply the body with its normal requirements of thyroid hormones for 2 to 3 months.

221. Ghrelin false is ?

a) Produced by stomach cells

b) Increased appetite

c) Is related to regulation of thyroid hormone

d) Stimulates growth

Correct Answer - C
Ans. C. Is related to regulation of thyroid hormone
Ghrelin is secreted primarily by the stomach and appears to play an important role in the central control of food intake.
It also stimulates growth hormone secretion by acting directly on recePtors in the pituitary.
It is also produced in the hypothalamus and has marked growth hormone-stimulating activity.

222. Isotope used to measure RBC volume is ?

a) Cr 51

b) H3

c) D_20

d) I^{135}

Correct Answer - A
Ans. A. Cr 51
Blood cell volume is measured by Cr51 labeled RBC.

223. Glucose is transported in renal tubular cells by

a) K symport

b) Kantiport

c) Na antiport

d) Na cotransport

Correct Answer - D
Ans. D. Na cotransport
Sodium-dependent glucose transporters, SGLT I and SGLT 2, are responsible for the secondary active transport of glucose in the intestine and renal tubules.
Glucose and Na+ bind to the sodium-dependent glucose transPorter (SGLT) 2 in the apical membrane, and glucose is carried into the cell as Na+ moves down its electrical and chemical gradient.

224. Water travelling from extracellular to intracellular is by?

a) Co-transport

b) Diffusion

c) Filtration

d) Active transport

Correct Answer - B
Ans. B. Diffusion
Best answer of this question is none because transport of water (solvent) across the cell membrane is caused by osmosis.
All the given options are the transport processes of solute across the cell membrane (not for solvent).
However among the given options, diffusion is the closest one : "Diffusion of solvent towards an area where there is higher concentration of solute is called osmosis".

225. Osmolarity is defined as ?

a) Number of osmole per litre

b) Number of osmole per kg

c) Weight of solute per litre

d) Weight of solvent per litre

Correct Answer - A
Ans. A. Number of osmole per litre
Osmolarity > Number of osmole per litre.
Osmolality > Number of osmole per kg.

226. Insensible water loss per day is ?

a) 100 ml

b) 300 ml

c) 700 ml

d) 1000 ml

Correct Answer - C
Ans. C. 700 ml
Insensible water loss- There is continuous loss of water by evaporation from respiratory tract and diffusion through the skin, which together accounts 700 ml/day of water loss under normal conditions.
The insensible water loss from skin (diffusion through skin) occurs independently of sweating and accounts 350 ml ofwater loss per day.
So, in the absence of sweating, water loss from the skin is 350 ml/day

227. Which of the following increases particle diffusion across the cell membrane ?

a) Increasing size of particle

b) Decreasing lipid solubility of substance

c) Increasing lipid solubility of substance

d) Decreasing size of opening in cell membrane

Correct Answer - C

Ans. C. Increasing lipid solubility of substance

Simple diffusion is favored by small size, lipid solubility and absence of polarity (non-polar substance) and charge (neutral molecule) through a thin, large membrane where the concentration gradient is more.

228. Mechanism of heat loss in modern X-ray tube is

a) Radiation

b) Evaporation

c) Conduction

d) Convection

Correct Answer - A

Ans. A. Radiation

The mechanism of heat loss in the modern X-ray tube is radiation.

Classical X-ray tube:

- The outer tube is made up of **glass.**
- Cathode- **tungsten** filament.
- An anode is the target and is made of **tungsten.**
- The mechanism of heat loss is **conduction.**
- The atomic number of tungsten is **74.**

Modern X-ray tube:

- The outer tube is made up of **stainless steel**
- Cathode- **tungsten + thorium**
  Anode- **tungsten + 10% rhenium**. An anode is **rotating** and the mechanism of heat loss is **radiation.**

229. Most potent anti oxidant ?

a) Vit A

b) Vit K

c) Vit E

d) Vit C

Correct Answer - C
Ans. C. Vit E
Vitamin E (tocopherol) is the most in potent antioxidant in the body, acting in the lipid phase of membranes protecting against the effects offree radicals.

230. In moderate excercise the respiratory rate is increased due to response of ?

a) Propioception receptor in the joints

b) ↓PCO_2 in arterial blood

c) ↓PO_2 in arterial blood

d) J-receptor stimulation

Correct Answer - A

Ans. A. Propioception receptor in the joints

In moderate exercise the abrupt increase in ventilation at the start of exercise is due to psychic stimuli and afferent impulses from proprioceptors in muscles, tendons and joints.

231. Myosin filament has a fixed length of

a) 0.16 nm

b) 1.6 micrometers

c) 16 nm

d) l.6 mm

Correct Answer - B
Ans. B. 1.6 micrometers
The total length of each myosin filament is uniform, almost exactly 1.6 micrometers.

232. Plasma membrane is mainly composed of ?

a) Cholesterol

b) Carbohydrate

c) Phospholipid

d) Protein

Correct Answer - D
Ans. D. Protein

233. On weight basis, the membrane contains protein and lipid in the ratio of ?

a) 1 : 2

b) 1 : 1

c) 2 : 1

d) 4 : 1

Correct Answer - B
Ans. B. 1 : 1
The cell membrane contains proteins and lipids in a 50:50 ratio. This refers to the ratio of their masses and not numbers".
It is worth noting here that above described percentage is in terms of area occupied. However, in terms of masses, the cell membrane contains proteins and lipids in a 50 : 50 ratio.

234. **Which of the following is the cause of nonshivering thermogenesis in adults?**

a) Noradrenaline

b) Thyroid hormone

c) Muscle metabolism

d) Brown fat between the shoulders

Correct Answer - A

Nonshivering thermogenesis refers to increase in metabolic rate that is not a result of muscle activity. It appears to be elicited through sympathetic stimulation and circulating catecholamines. Epinephrine and norepinephrine which are released increases metabolic activity and heat generation.

Ref: Guyton and Hall - Textbook of Medical Physiology, 10th Edition, Pages 821, 828-829; Medical Physiology: Principles for Clinical Medicine By Rodney A. Rhoades, 4th Edition, Page 568; Fundamentals of Human Physiology By Lauralee Sherwood, Page 489

235. The thickness of endometrium at the time of implantation is :

a) 3 – **4** mm

b) 20 – 30 mm

c) 15 –20 mm

d) 30 – 40 mm

Correct Answer - A
Ans. is None/ a i.e. 3-4 mm
"7he Endometrium is in the secretory phase corresponding to 20 - 21 days of cycle" at the time of implantation.
"After ovulation, the endometrium now demonstrates a combined reaction to estrogen and progesterone activity. Most impressive is that total endometrial height is fixed at roughly its preovulatory extent (5 -6 mm) despite continued availability of estrogen."
Reading the above text it is clear that endometrium is - 5 - 6 mm thick at the time of implantation, which is not given in the option. Still if you have to mark one answer option 'a' i.e. 3 - 4 mm being closest could be right.

Extra Edge

- Implantation occurs 7 - 9 days after ovulation°.
- In human, the blastocyst burrows in the uterine cavity till whole of it lies within the thickness of endometrium. This is called as interstitial implantation.
- After implantation of the embryo the uterine endometrium is called the decidua".

Decidua basalis - The part of decidua where the placenta is to be formed.
Decidua Capsularis - The part of the decidua that separates the

embryo from the uterine lumen. Decidua Parietalis - The part of the decidua lining rest of the uterine cavity.
At the end of pregnancy, the decidua is shed off along with placenta and membranes.

236. Digestive enzymes are

a) Hydrolases

b) Oxidoreductases

c) Dehydrogenases

d) Ligases

Correct Answer - A
Ans. is 'a' i.e., Hydrolases *[Ref Harper's 29th le* p. *518-19]*
All digestive enzymes are hydrolases.

237. Enzymes that move a molecular group from one molecule to another are known as -

a) Ligases

b) Oxido-reductases

c) Transferases

d) Dipeptidases

Correct Answer - C

Ans. is C. i.e., Transferase [Ref Chatterjea 8th/e p. 123; Harper 28th/e p. 52]

Transferases Catalyze transfer of C-N-, or P-containing group from one substrate to another,

238. Glucose-6-phosphate dehydrogenase need -

a) NAD

b) NADP

c) FAD

d) FMN

Correct Answer - B

Ans. is 'b' i.e., NADP *[Ref : Harper 29th/e* p. *197]*

NAD* -linked dehydrogenases Pyruvate dehydrogenase, isocitrate dehydrogenase, malate dehydrogenase, a-ketoglutarate dehydrogenase, glutamate dehydrogenase, glyceraldehyde-3-P dehydrogenase, lactate dehydrogenase, p-hydroxy acyl CoA dehydrogenase, glycerol 3-P dehydrogenase (cytoplasmic).

NADP'-linked dehydrogenases Glucose-6-P dehydrogenase, 6-Phosphogluconate dehydrogenase, 3-ketoacyl reductase, Enoyl reductase, gulonate dehydrogenase.

FAD-linked dehydrogenases Succinate dehydrogenase, fatty acyl CoA dehydrogenase, glycerol-3P **et*** hydrogenase (mitochondrial).

239. Which of the following is NADP linked

a) G6PD

b) APDH

c) a-keto glutarate dehydrogenaes

d) None

Correct Answer - A
Ans. is 'a' i.e.,G6PD *[Ref Harper 28"le* p. 175]
Amongst the given options, only G6-PD (glucose-6-phosphate dehydrogenase) is NADP linked enzyme.

240. Aldehyde dehydrogenase requires NAD as ?

a) Cofactor

b) Apoenzyme

c) Coenzyme

d) None

Correct Answer - C
Ans. is C. i.e., Coenzyme [Ref Read below]
The complete enzyme, i.e. protein part (apoenzyme) with its non-protein part is called Holoenzyme.
Alcohol dehydrogenase is the enzyme (protein) part of complete enzyme (Holoenzyme). Thus, alcohol dedydrogenase itself is apoenzyme.
It requires non-protein part NAD, which is an organic component. So, NAD acts as coenzyme for alcohol dehydrogenase.

241. Apoenzyme is ?

a) Cofactor

b) Coenzyme

c) Protein moiety

d) None

Correct Answer - C
Ans. is 'c' i.e., Protein moiety [Ref Harper 28^{15}/e p. 52]
The complete enzyme (Holoenzyme) is made of protein portion (apoenzyme) and cofactor/coenzyme.

242. In xanthine oxidase co factor is ?

a) Selenium

b) Zn

c) Molybdenum

d) Mg

Correct Answer - C
Ans. is 'c' i.e., Molybdenum [Ref : Essential biochemistry p. 786]
Two important enzymes using molybdenum are xanthine oxidase and sulfite oxidase.

243. What are isoenzyme -

a) Physically same forms of different enzymes

b) Physically disinct forms of same enzyme

c) Forms of same enzyme that catalyze different reactions

d) Forms of different enzyme that catalyze same reactions

Correct Answer - B

Ans. is 'b' i.e., Physically disinct forms of same enzyme

Isoenzymes are the physically distince forms of the same enzyme. They catalyze the same chemical reaction or reactions but differ from each other structurally°, electrophoretically° and immunologically.

Isoenzymes possess quaternary structure, and are made up of two or three different subunit° (multimeric^{Q}).

The subunits have slightly different primary structures. Isoenzymes catalyze the same reaction and act on same substrate°, but with different Km° and Vmax values, i.e., isozymes have different kinetics°.

The isoenzymes can be separated from each other by electrophoretic, chromatographic or immunochemical techniques. Separation and quantitation of isoenzymes can give information of great diagnostic importance as the tissue distribution of isoenzymes is quite specific

244. Enzyme causing covalent bond cleavage without hydrolysis ?

a) Lyase

b) Ligase

c) Hydrolase

d) Transferase

Correct Answer - A
Ans. is 'a' i.e., Lyase [Ref Classification of enzymes from your notes]
Cleavage by hydrolysis (addition of water) Hydrolases
Cleavage without hydrolysis (without addition of water)→Lyases

245. Enzymes act by ?

a) Increase in activation energy

b) Decrease in activation energy

c) Shift equilbrium constant

d) None

Correct Answer - B

Ans. is 'b' i.e., Decrease in activation energy

In a chemical reaction, the substrate has to be converted to a higher energy form (called transition form) before it can form the reaction products.

The transition state is structurally an intermediate between the substrate and the product, and represents the highest energy arrangement of atoms.

Therefore, it is unstable; once formed, it decomposes almost immediately to form the reaction product.

So, this high energy intermediate acts as energy barrier, separating the substrates and the products.

This barrier, called the free energy of action, is the energy difference between the energy of the substrates and high energy intermediates.

In other words, initially some energy must be put into the substrate for conversion into transition state (high-energy intermediate); this is the free energy of activation.

The enzymes speed up the chemical reaction by lowering the magnitude of the activation energy barrier, i.e., free energy of activation.

246. Km value is defined as:

a) Substrate concentration at Vmax/2

b) Substrate concentration of twice Vmax

c) Substrate concentration of thrice Vmax

d) Substrate concentration of one third Vmax

Correct Answer - A
Ans. A. Substrate concentration at Vmax/2

247. The predominant isoenzyme of LDH occuring in liver injury is ?

a) LDH-1

b) LDH-2

c) LDH-4

d) LDH-5

Correct Answer - D
Ans. is 'd' i.e., LDH-5 [Ref: Essentials of biochemistry p. 756]
Predominant form in liver is LDH5.

248. Specific activity of enzyme is ?

a) limo' of enzyme per gram of substrate

b) Enzyme units per mg of protein

c) Conc. of substrate transformed per minute

d) None

Correct Answer - B

Ans. is 'b' i.e., Enzyme units per mg of protein [Ref Lippincott's 3"[1]/e p.

249. Type of inhibition of aconitase by Transaconitate is?

a) Non-competitive

b) Competitive

c) Allosteric

d) None

Correct Answer - B

Ans. is 'b' i.e., Competitive [Ref Essentials of Biochemistry p. 685]

	enzymes	**competitive inhibitors**
1	Lactate dehydrogenase	Oxamate
2	**Aconitase**	**Transaconitate**
3	**Succinate dehydrogenase**	**Malanate**^{Q}
4	HMG-CoA reductase	HMG, Lovastatin
5	Dihydrofolate reductase	Amethopterin, Methotrexate
6	Xanthine oxidase	Allopurinol
7	Alcohol dehydrogenase	Ethanol
8	Carbonic anhydrase	Acetazolamide
9	Digoxin	Na-K ATPase
10	5 - Fluorouracil	Thymidylate synthase

250. Functional plasma enzyme is ?

a) Fibrinogen

b) LDH

c) SGOT

d) SGPT

Correct Answer - A
Ans. is 'a' i.e., Fibrinogen [Ref harper's 28th/e p. 59]
Cloting factors (including fibrinogen) are functional plasma enzymes.

251. Substrate level phosphorylation is by

a) Pyruvate kinase

b) Phosphofructokinase

c) Hexokinase

d) ATP synthase

Correct Answer - A
Ans. 'A' Pyruvate kinase
Substrate Level Phosphorylation-
In Glycolysis-

- Phosphoglycerate kinase
- Pyruvate kinase

In Citric Acid Cycle-

- Succinate thiokinase

252. **Substrate level phosphorylation occur in step catalysed by which of the following enzyme in TCA cycle?**

a) Isocitrate dehydrogenase

b) Malate dehydrogenase

c) Aconitase

d) Succinate thiokinase

Correct Answer - D
Succinate thiokinase is the enzyme that generates ATP directly by substrate-level phosphorylation. In Krebs cycle succinate thiokinase catalyze the conversion of Succinyl CoA into succinate. In this step GDP is phosphorylated to GTP. GTP can then be converted to ATP by reacting with an ADP molecule.
Substrate-level phosphorylation is a type of metabolism that results in the formation and creation of adenosine triphosphate (ATP) or guanosine triphosphate (GTP) by the direct transfer and donation of a phosphoryl (P03) group to adenosine diphosphate (ADP) or guanosine diphosphate (GDP) from a phosphorylated reactive intermediate.
In glycolysis substrate level phosphorylation occur in two steps:
Conversion of 1,3 BPG to 3 Phosphoglycerate catalyzed by Phosphoglycerate kinase
Conversion of Phosphoenolpyruvate to pyruvate catalyzed by Pyruvate kinase
Ref: Textbook of Biochemistry By D M Vasudevan, 3rd Edition, Page 195

253. In ETC, cyanide inhibits ?

a) Complex I

b) Cytochrome C oxidase

c) Complex IV

d) Complex III

Correct Answer - B:C

Ans. is 'b' i.e., Cytochrome C oxidase & 'c' i.e., Complex IV

[Ref Harper 29th/e p. 127, 28th/e p. 108, 109; Vasudevan 6th Ie p. 234]

* Complex I :- Barbiturates (amobarbital), piercidin A, rotenone, chlorpromazine, guanithidine.
* Complex II :- Carboxin, TTFA, malonate.
* Complex III:- Dimercaprol, BAL, actinomycin A, Naphthyloquinone.
* Complex IV (cytochrome c oxidase) :- Carbon monoxide (CO), cyanide (CN-), H_2S, azide (N')

254. NADPH via glycerophosphate shunt makes how many ATP?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B
Ans. is > b' i.e., 2 [Ref : Harper 29"/e p. 129-130]
In glycerophosphate shuttle, the mitochondrial enzyme is linked to respiratory chain (ETC) via a flavoprotein, So only 1.5 mol of ATP are produced (According to older calculations, 2 ATP mol of ATP are produced).
In malate shuttle, the mitochondrial enzyme is linked to ETC via NAD, so 2.5 mol of ATP are produced (according to older calculations 3 mol of ATP are produced).

255. Enzyme involved in oxidative phosphorylation ?

a) Pyruvate kinase

b) Succinyl CoA thiokinase

c) NADH dehydrogenase

d) None

Correct Answer - C

Ans. is 'c' i.e., NADH dehydrogenase [Ref Harper 29'/e p. 126-128, Vasudevan 6th le p. 234]

Oxidative phosphorylation takes phase along the electron transport chain (respiratory chain), where the ATP is synthesized indirectly from creation of a protein gradient and movement of protiens across inner mitochondrial membrane helps in formation of ATP.

The protein gradient is created by large change in free energy due to transport of electron in ETC. Electrons enter the ETC via NAD' or FAD.

Complex I (NADH - CoQ reductase) catalyzes the transfer of electron from NADH to coenzyme Q (CoQ). {NADH-CoQ reductase is also called NADH dehydrogenase.}.

256. Among the following, the maximum redox potential is for:

a) NADH/NAD

b) Succinate/Fumarate

c) Ubiquinone

d) $Fe+^{3}/ Fe^{+2}$

Correct Answer - D
Ans. D i.e. $Fe+^{3}/ Fe^{+2}$
Because electrons tend to flow spontaneously from carries of lower redox potential (E°) to carries of higher redox potential. The order (sequence) of electron carriers in ETC of mitochondria (and so the *increasing order of redox potential)* is
Substrate --> $NADP^{+}$ /NADPH —> NADVNADH —› NADH dehydrogenase (FMN) / NADH dehydrogenase (FMNH2) —> $FAD/FADH_2$ —> Ubiquinone or Coenzyme Q —> Fe^{3+} / Fe^{e*} in cytochromes b —> C —> a -+ a_3 —> 02

257. In ETC NADH generates -

a) 1 ATPs

b) 2 ATPs

c) 3 ATPs

d) 4 ATPs

Correct Answer - C

Ans. is '> c' i.e., 3 ATPs [Ref : Harper 28'"/e p. 106, Vasudevan 5thie p. 231]

The energy liberated of site **I** (complex I) is used to synthesize 1 ATP molecule, at site II (complex **III)** is used to synthesize 1 ATP molecule and at site **III** (Complex **IV)** is used to synthesize 1/2 ATP molecule.

Thus,**when 1 NADH molecule enters the respiratory chain, it produce 2.5 molecules of ATP°. When I molecule of FADH2 enters the respiratory chain only 1.5 molecules of ATP are produced°** as site I of energy liberation is bypassed.

Note : Previously it was assumed the NADH produces 3 ATPs and FAD generates 2 ATPs. Recent experiments show-that these old values are overestimates and **NADH produces 2.5 ATPs° and FADH2 produces 1.5 ATPs°.**

258. In glycolysis, inorganic phosphate is used reaction, catalyzed by ?

a) Enolase

b) Pyruvate kinase

c) Glyceraldehyde-3-p dehydrogenase

d) Aldolase

Correct Answer - C

Ans. is 'c' i.e.,Glyceraldehyde-3-p dehydrogenase [Ref Harper's 25^{0}/e p. 171]

259. True about glycolysis?

a) Hexokinase produce ATP

b) 1 cycle produces 2 ATP

c) It produces directly 2 molecules of lactate

d) Aldolase produces irreversible polymerization

Correct Answer - C

Ans. is 'c' i.e.,It produces directly 2 molecules of lactate [Ref Harper 29th/e p. 170-177]

- Each cycle of anaerobic glycolysis produces 2 molecules of lactate (lactic acid) whereas in aerobic condition it produces 2 molecules of pyruvate.

Option b is tricky one. **Each glycolytic cycle produces 4 ATPs** (not 2 ATPs). But out of these 4 ATPs, 2 are used in the cycle itself. Therefore, there is net gain of 2 ATPs. So,:-

1. Each cycle of glycolysis produces - 4 ATPs.
2. Each cycle utilizes 2 ATPs
3. Net gain in each cycle - 2 ATPs

260. **Enzymes of glycolysis are found in:**

a) Cytosol

b) Cell membrane

c) Mitochondria

d) Ribososmes

Correct Answer - A
All of the enzymes of glycolysis are found in the cytosol.

Ref: Harper 28th edition, chapter 18.

261. The rate limiting step in glycolysis is catalyzed by?

a) Pyruvate kinase

b) Enolase

c) Glucokinase

d) Phosphofructokinase

Correct Answer - A:C:D

Ans. is 'd> a & c' i.e., Phosphofructokinase > Pyruvate kinase & Glucokinase [Ref Lippincott's 5th Ie p. 99]

Phosphofructokinase, glucokinase and pyruvate kinase are rate limiting enzymes **of glycolysis. However, phosphofructokinase** is the most important one.

262. Number of ATP molecules and NADH formed in each cycle of glycolysis ?

a) 4 ATP, 2 NADH

b) 2 ATP, 2 NADH

c) 4 ATP, 4 NADH

d) 2 ATP, 4 NADH

Correct Answer - A

Ans. is 'a' i.e., 4 ATP, 2 NADH

Enegetics of glvcolysis

During glycolysis 2 ATP are utilized and 4 ATP are produced at substrate level. 2 reducing equalents NADH' are produced and reoxidized by electron transport chain, to generata 5 ATP molecules (2.5 ATP per NADH' molecule). Thus total 9 ATP molecules are produced and 2 are utilized, i.e., There is net gain of 7 ATP molecules in aerobic glycolysis.

In anaerobic conditions, the reoxidation of NADH by electron transport chain is prevented and NADH gets reoxidized by conversion of pyruvate to lactate by lactate dehydrogenase. Thus, in anaerobic glycolysis only 4 ATP are produced at substrate level. Therefore, there is net gain of 2 ATP molecules in anaerobic glycolysis.

Note : - Previous calculations were made assuming that NADH produces 3 ATPs and FADH2 generates 2 ATPs. This will amount to a net generation of 8ATPs per glucose molecule during glycolysis. Recent experiments show that these old values are overestimates and NADH produces 2.5 ATPs and FADH2 produces 1.5 ATPs. Thus, net generation is only 7ATPs during glycolysis.

263. All are activated by insulin except ?

a) Lipoprotein lipase

b) Pyruvate kinase

c) Hormone sensitive lipase

d) Acetyl-CoA carboxylase

Correct Answer - C
Ans. is C. i.e., Hormone sensitive lipase
Enzymes /Pathways activated by insulin
Glycolysis : PFK-1, Pyruvate kinase, glucokinase, PDH.
Glycogenesis : Glycogen synthase.
Lipogenesis : Acetyl-Co-carboxylase, Fatty acid synthase.
Cholesterol synthesis : HMG - CoA reductase.
Triglyceride synthesis : Acyl - CoA glycerol-3-P transferase, glycerol kinase.
Lipoprotein degradation : Lipoprotein lipase

264. Nonsense codons bring about ?

a) Elongation of polypeptide chain

b) Pre-translational modificastion of protein

c) Initiation of protein synthesis

d) Termination of protein synthesis

Correct Answer - D

Ans. is D. i.e., Termination of protein synthesis [Ref Harper 28"le p. 353, 354]

Stop or termination or nonsense codons:- Three of the 64 possible nucleotide triplets UAA^{Q} (amber ^{0}),UAG^{Q} (Ochre) and UGA^{Q} (opal) do not code for any amino acid. They are called nonsense codons that normally signal termination of polypeptide chains^{0}. Thus, though there are 64 possible triplet codons, only 61 codes for 20 amino acids (as remaining three are non-sense codons).

265. ATP is consumed at which step of glycolysis

a) Enolase

b) Hexokinase

c) Pyruvate kinase

d) Isomerase

Correct Answer - B
Ans. is 'b' i.e., Hexokinase
ATP is consumed at reactions catalysed by - hexokinase, phosphofructokinase I.
ATP is produced at reactions catalyzed by -> phosphoglycerate kinase, pyruvate kinase.

266. Methionine can entre the TCA cycle at which level?

a) Fumarate

b) Oxabacetate

c) Succinyl - CoA

d) Citrate

Correct Answer - C
Ans. is 'c' i.e., Succinyl - CoA

267. Rate limiting steps in TCA cycle ?

a) a–Ketoglutarate Succinyl CoA

b) Citrate - Isocitrate

c) Succinyl CoA 4 Succinate

d) Succinate - Fumarate

Correct Answer - A

Ans. is 'a' i.e., alpha-Ketoglutarade - Succinyl CoA [Ref Harper's 28th/e p. 147, 154]

Regulating steps in TCA Cycle are catalyzed by : a) Citrate Synthase : Catalyzes condensation of acetyl CoA & oxaloacetate to from citrate.

Isocitrate dehydrogenase : Catalyzes the conversion of isocitrate to a-ketoglutarate by decarboxylation.

a-ketoglutarate dehydrogenase : Catalyzes the conversion of a-ketoglutarate to succinyl CoA

268. Rate limiting step in TCA cycle is catalyzed by -

a) a-ketoglotarate synthase

b) Fumarase

c) Aconitase

d) Thiokinase

Correct Answer - A

Ans. is 'a' i.e., a-ketoglotarate synthase [Ref Harper 28th/e p. 147, 154]

269. Fluroacetate inhibits ?

a) Citrate synthetase

b) Aconitase

c) Succinate dehydrogenase

d) Alphaketoglutarate dehydrogenase

Correct Answer - B

Ans. is 'b' i.e., Aconitase [Ref Harper 28thIe p. 145]

270. Inhibitors of glycolysis are all except ?

a) Fluoride

b) Fluoroacetate

c) Arsenite

d) Iodoacetate

Correct Answer - B
Ans. is 'b' i.e., Fluoroacetate [Ref Harper' s 28`"/e p 151]
Fluoroacetate is an inhibitor of TCA cycle.

271. The biosynthesis of the enzyme pyruvate carboxylase is repressed by ?

a) Insulin

b) Glucagon

c) Cortisol

d) Epinephrine

Correct Answer - A

Ans. is 'a' i.e., Insulin [Ref : Harper 28th/e p. 168]

Gluconeogenesis is regulated by four key enzymes : (i) Pyruvate carboxylase; (ii) Phosphoenolpyruvate carboxykinase; (iii) Fructose-1, 6-bisphosphatase; and (iv) Glucose-6-phosphatase.

The hormone glucagon, epinephrine and glucocorticoids stimulate gluconeogenesis, by inducing these enzymes. Conversely, insulin inhibits gluconeogenesis by repressing their synthesis.

272. Where can glucose 6 phosphate not be converted to glucose ?

a) Muscle

b) Liver

c) Adipose tissue

d) Kidney

Correct Answer - A

Ans. is 'a' i.e., Muscle [Ref : Harper 25^{0} le p. 178-179]

Glucose-6-phosphatase is absent in muscles therefore, glucose-6-phosphate cannot be degraded to free glucose in muscles. Moreover, glucose-6-phosphate cannot diffuse out of the muscles. Therefore, muscle cannot provide glucose to maintain blood glucose level. Rather, muscle glycogen acts as a source of energy; the glucose-6-phosphate enters the glycolysis to produce energy.

273. Common intermediate between gluconeogenesis and fatty acid synthesis ?

a) Glucose-6-phosphate

b) Acetyl-CoA

c) Citrate

d) Succinyl-CoA

Correct Answer - C

Ans. is 'c' i.e., Citrate [Ref Harper 29th le p. 188]

Citrate in Gluconeogenesis

- Gluconeogenesis involves glycolysis, the citric acid cycle and some special reactions.
- Citrate is an intermediary metabolism of gluconeogenesis (through TCA cycle).

274. Glycogen synthase is activated by ?

a) Insulin

b) Glucagon

c) Epinophrine

d) AMP

Correct Answer - A
Ans. is 'a' i.e.,Insulin [Ref Harper 28th/e p. 159-161, Lehinger 5th/e p. 603, 604]

275. Glycogen storage disease which presents as lysosomal storage disease ?

a) Von gierke's disease

b) Pompes disease

c) Mcardle's disease

d) Andersen's disease

Correct Answer - B

Ans. is 'b' i.e., Pompes disease [Ref Lippincott's 4th/e p. 129-131]

Type II glycogen storage disease (Pompes disease) is the only glycogen storage disease that is a lysosomal storage disease

276. Aldolase-B is involved in metabolism of ?

a) Galactose

b) Fructose

c) Sucrose

d) None

Correct Answer - B
Ans. is 'b' i.e., Fructose [Ref Harper's 28th /e p. 179)

277. In humans, ascorbic acid cannot be synthesized because of ?

a) Deficiency of G6PD

b) Deficiency of xylulose kinase

c) Deficiency of L-gulonolactone oxidase

d) Deficiency of phosphoglucomutase

Correct Answer - C
Ans. is 'c' i.e., Deficiency of L-gulonolactone oxidase
In man, other primates and guinea pigs, ascorbic acid can be synthesized due to absence of L-glucanolactone oxidase, an enzyme used in lower animals to synthesise ascorbic acid as a byproduct of uronic acid pathway (glucuronic acid cycle).

278. Glucose oxidase converts glucose to?

a) Gluconic acid

b) Glucuronic acid

c) Iduronic acid

d) Galactic acid

Correct Answer - A
Ans. is 'a' i.e., Gluconic acid [Ref : Internet]
Oxidase-peroxidase enzyme system is used to determine glucose in urine & blood.
Glucose oxidase enzyme produces hydrogen peroxide & gluconic acid from glucose.Peroxidase catalyses the reaction of H202 with colourless potassium iodide to brown iodide. This produces a colour change, the intensity of which may indicate glucose concentration in some tests(such as Boehringer, Diastix).

279. Glucose is converted to glucuronate by ?

a) Oxidation of aldehyde group

b) Oxidation of terminal alcohol

c) Oxidation of both

d) None

Correct Answer - B

Ans. is 'b' i.e., Oxidation of terminal alcohol [Ref Chatterjee 8th/e p. 29]

When aldose sugars are oxidized they may form three different sugar acid, depending upon oxidation of aldehyde group (at C-1) or terminal alcohol group (at C-6).

1. Aldonic acid :- Oxidation of an aldose with hypobromous acid (HOBr) oxidises only aldehyde group and convert it to carboxyl group to form aldonic acid. For example, glucose is oxidized to gluconic acid.
2. Saccharic acid :- Oxidation of aldoses with nitric acid convert both aldehyde and terminal primary alcohol groups to carboxyl group, formic saccharic acid. For example, glucose is oxidize to glucosaccharic acid.
3. Uronic acid :- When an aldose is oxidized in such a way that the terminal primary alcohol is converted is to carboxyl without oxidation of aldehyde group, a uronic acid is produce. For example, glucose is oxidized to glucuronic acid.

280. Increased uric acid levels are seen in which glycogen storage disease ?

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - A

Ans. is 'a' i.e., Type I [Ref Harper 29^{m}/e p. 339]

Purine overproduction and hyperuricemia in von Gierke disease (glucose-6-phosphatase deficiency) occurs secondary to enhanced generation of PRPP precursor, i.e. ribose-5-phosphate (a pentose). In glucose-6-phosphatase deficiency, glucose-6-phosphate cannot be converted to glucose. Accumulated glucose-6-phosphate is then metabolized via HMP shunt, which in turn generates large amounts of ribose-5-phosphate, a precursor of PRPP. The increased synthesis of PRPP then enhances de novo synthesis of purine nucleotides

281. Gulonate dehydrogenase requires ?

a) NADP

b) NAD

c) FAD

d) FMN

Correct Answer - A
Ans. is 'a' i.e., NADP [Rep Harper 29t5/e p. 201-204]
Gulonate dehydrogenase is an enzyme in glucuronic acid pathway (uronic acid pathway) that requires NADP'.

282. All are reducing sugars except-

a) Sucrose

b) Lactose

c) Glucose

d) Fructose

Correct Answer - A
Ans. A. Sucrose

Disaccharides	**Sugar Units**	**Linkage**
Trehalose (Sugar of insect hemolymph, yeast and fungi)	αDGlucose + αDGlucose	α1 ------- α1 linkage
Sucrose (Cane Sugar)	αDGlucose +β DFructose	α1 ------- β2 linkage

283. Mutation in GLUT-2 causes ?

a) Dandy walker syndrome

b) Fanconi becker syndrome

c) Beckwith syndrome

d) Menke's disease

Correct Answer - B
Ans. is 'b' i.e., Fanconi becker syndrome [Ref Diagnostic of Endocrine function is children and adolescents p. 271]
GLUT 2 is expressed in pancreatic 13-cells, hepatocytes and in epithelial cells of kidney and intestine.
Fanconi-Bickel syndrome is caused by GLUT 2 mutation, a disease characterized by proximal renal tubulopathy, impaired glucose homeostasis and hepatomegaly.

284. Amino sugar are formed forms ?

a) Glucose- 1 -phosphate

b) Glucose-6-phosphate

c) Fructose- 1 -phosphate

d) Fructose-6-phosphate

Correct Answer - D

Ans. is 'd' i.e., Fructose-6-phosphate [Ref Dinesh puri 3rdle p. 170]

Amino sugars are dervatives of monosaccharides in which an amino group replaces the -OH residue on carbon-2 of hexose, such as glucose, galactose and mannose, The corresponding compounds are glucosamine, galactosamine and mannosamine, respectively.

The amino acid group is usually acetylated, e.g. N-acetylglucosamine or N-actylgalactosamine.

The amino sugars are required for the synthesis of glycolipids, glycoproteins and proteoglycans.

They are synthesized from fructose-6-phosphate

285. Difference between ganglioside & cerebroside, all except?

a) Charge

b) Presence of NANA

c) Presence of carbohydrate

d) Native tissue

Correct Answer - C

Ans. is 'c' i.e., Presence of carbohydrate [Ref Lippincott's 4th/e p. 208-210]

Both ganglioside and cerebroside contain carbohydrate as both are glycolipids.

NANA is present in ganglioside (not in cerebroside).

286. 1" acetyl group donor in fatty acid synthesis is ?

a) Malonyl CoA

b) Palmitate

c) Acetyl CoA

d) Citrate

Correct Answer - C

Ans. is 'c' i.e., Acetyl CoA [Ref : Harper 29"le p. 216-217]

Acetyl-CoA acts as a primer to donate 1st 2 carbon atoms (C-15 and C-16) of palmitate. The addition of all the subsequent C2 units is via malonyl-CoA.

Propionyl-CoA acts as primer (for donating first 3 carbon atoms) in the synthesis of odd-carbon number fatty acids.

287. Only vitamin that help in carbon fixation ?

a) Folic acid

b) Pantothenic acid

c) Niacin

d) Thiamine

Correct Answer - A
Ans. is 'a' i.e., Folic acid

288. Rate controlling enzyme of fatty acid synthesis -

a) Thioesterase

b) Transacetylase

c) Acetyl-CoA carboxylase

d) Ketacyl synthase

Correct Answer - C

Ans. is 'c' i.e., Acetyl-CoA carboxylase [Ref Harper 29th/e p. 217, 220]

Production of malonyl-CoA is the initial° and rate limiting step in fatty acid synthesis.

Acetyl-CoA needs to be converted to activated form, which will serve as the donor of carbon units to growing fatty acid chain.

Malonyl-CoA°) a 3- carbon compound is such activated form.

It is produced by carboxylation of acetyl-CoA, a reaction catalyzed by acetyl-CoA caroxylase°. Acetyl-CoA carboxylase requires biotin as a cofactor°.

289. Which of the following is required for fatty acid synthesis ?

a) NADPH

b) NADH

c) FADH

d) None

Correct Answer - A

Ans. is 'a' i.e.,NADPH [Ref Harper 29th/e p. 216-217]

Fatty acid synthesis takes place in cytosolQ.

Acetyl-CoA is the immediate substrate for lipogenesis and synthesis always ends in formation of plamitic acie.

In humans; liver and lactating mammary glands are the main organs for lipogenesisQ.

Although kidney, brain, lungs and adipose tissue are also involved, to a lesser extent.

Cofactor requirements for fatty acid synthesis are NADPH, ATP, $Mr1^{\cdot 2}$, biotin and HCO_3- (as a source of CO2).

Because most fatty acids have multiples of two carbons, they are synthesized from successive addition of two carbon units, the donor of which is acetyl-CoA.

So, the basic building block is acetyl-CoA° which is the source of all the carbon atoms of the fatty acid being synthesized.

290. Citrate used in fatty acid synthesis uses which enzyme ?

a) Citrate Synthase

b) ATP citrate lyase

c) Aconitase

d) Malic enzyme

Correct Answer - B

Ans. is 'b' i.e., ATP citrate lyase [Ref Harper's 28th/e p. 193, 196]

Glucose is the primary substrate for lipogenesis and acetyl-CoA (immediate substrate for fatty acid synthesis) is formed from glucose via oxidation of pyruvate within the mitochondria.

However, acetyl-CoA can not penetrate inner mitochondrial membrane.

Therefore it is transferred in the form of citrate.

Citrate is formed in the mitochondrial matrix by the condensation of acetyl-CoA with oxaloacetate (first reaction in citric acid cycle).

Then citrate is transported into cytosol via the tricorboxylate transporter in exchange with malate.

In cytosol, citrate is cleaved by ATP-citrate lyase to oxaloacetate and acetyl-CoA.

291. Which of the following is w-6 fatty acid -

a) Cervonic acid

b) Linoleic acid

c) Alpha linolenic acid

d) Elaidic acid

Correct Answer - B

Ans. is 'b' i.e., Linoleic acid [Ref Harper 28th/e p. 123]

Alpha linolenic acid → Linoleic acid → Oleic acid

Clupandonic acid → Gama linolenic acid → Nervonic acid

Cervonic acid → Arachidonic acid → Elaidic acid

292. Linoleic acid is -

a) w-3 fatty acid

b) w-6 fatty acid

c) w-9 fatty acid

d) Saturated fatty acid

Correct Answer - B

Ans. is b' i.e., w-6 fatty acid [Ref Harper 28thle p. 123]

293. Lipogenesis occurs in ?

a) Liver

b) Skeletal muscles

c) Myocardium

d) Lungs

Correct Answer - A:D
Ans. is 'a > d' i.e., Liver > Lungs
Fatty acid synthesis takes place in cytosol°.
Acetyl-CoA is the immediate substrate for lipogenesis and synthesis always ends in formation of palmitic acid.

294. Which of the following is monoenoic acid ?

a) Arachidonic acid

b) Linoleic acid

c) Oleic acid

d) Linolenic acid

Correct Answer - C
Ans. C. Oleic acid
In humans; liver and lactating mammary glands are the main organs for lipogenesisQ.
Although kidney, brain, lungs and adipose tissue are also involved, to a lesser extent.
Cofactor requirements for fatty acid synthesis are NADPH, ATP, $Mn^{\cdot 2}$, biotin and HCO_3- (as a source of CO).
Because most fatty acids have multiples of two carbons, they are synthesized from successive

295. Which of the following fatty acid has maximum number of carbon atoms ?

a) Oleic acid

b) Linolenic acid

c) Arachidonic acid

d) Cervonic acid

Correct Answer - D
Ans. is 'd' i.e., Cervonic acid
Cervonic acid has 22 carbon atoms, more than oleic acid (18C), linolenic acid (18C) and arachidonic acid (20C).
So, the basic building block is acetyl-CoA^{Q} which is the source of all the carbon atoms of the fatty acid being synthesized.

296. Chylomicron remnants are associated with ?

a) Apo-A

b) Apo-B100

c) Apo-E

d) Apo-C

Correct Answer - C
Ans. is 'c' i.e., Apo-E

297. Apoprotein - C ?

a) Activates lipoprotein lipase

b) Inactivates lipoprotein lipase

c) Facilitates triglyceride transport

d) All of the above

Correct Answer - D

Ans. is 'd' i.e., All of the above [Ref Harper 28th/e p. 213]

Apo C-II is an activator of LPL, wheras apo A-II and apo C-III act as inhibitors of LPL.

As apo-C is a component of chylomicrons and VLDL, it facilitates transport of TGs.

298. Which is not true of chylomicrons ?

a) Lowest desnsity

b) Max. content is TGs

c) Max. content is cholesterol

d) Largest size

Correct Answer - C

Ans. is 'c' i.e., Max.content is cholesterol [Ref: Harper 29th/e p. 238, Chatterjea 8th le p. 445, 446]

299. Oxidised LDL is more athreogenic because ?

a) Binds to Apo E

b) Binds to scavenger R

c) Binds to ATP binding

d) Accumulates in macrophages

Correct Answer - D

Ans. is 'd' i.e., Accumulates in macrophages [Ref Robbin's 8th Ie p. 837]

Macrophages engulf LDL cholesterol and form foam cells formation of earliest lesion, i.e. fatty streak.

Macrophages also form oxygen free radicals that cause oxidation of LDL to yield oxidized LDL (modified LDL).

300. LCAT deficiency increases the following

a) HDL

b) LDL

c) VLDL

d) Chylomicron

Correct Answer - A
Answer: A. HDL
Lecithin cholesterol acyltransferase deficiency (LCAT deficiency) is a disorder of lipoprotein metabolism.
A deficiency of LCAT causes accumulation of unesterified cholesterol in certain body tissues. Cholesterol effluxes from cells as free cholesterol and is transported in HDL as esterified cholesterol. LCAT is the enzyme that esterifies the free cholesterol on HDL to cholesterol ester and allows the maturation of HDL.
LCAT is the enzyme that esterifies the free cholesterol on HDL to cholesterol ester and allows the maturation of HDL. LCAT deficiency does not allow for HDL maturation resulting in its rapid catabolism of circulating apoA-1 and apoA-2. The remaining form of HDL resembles nascent HDL.

301. Hormone sensitive lipase is inhibited by?

a) Thyroid homone

b) Insulin

c) GH

d) ACTH

Correct Answer - B
Ans. is `b' i.e.,Insulin [Ref Harper 29"Ve p. 246, 247]

302. Lecithine hydrolysis yeilds ?

a) Choline

b) Pyruvate

c) Glycine

d) None

Correct Answer - A
Ans. is 'a' i.e.,Choline [Ref Harper 29th/e p. 233]

303. Omega oxidation of fathy acids occur?

a) ER

b) Mitochondria

c) Cytosol

d) None

Correct Answer - A
Ans. is 'a' i.e.,ER [Ref Harper's 28th/e p. 185, 195]
Beta (a) → Mitochondria
Alpha (a) → Endoplasmic reticulum, Mitochandria
Omega (w) → Microsomal system (smooth ER)
a-oxidation of very long chain FA → Peroxisomes

304. What is true regarding medium chain fatty acids ?

a) Don't require pancreatic lipase

b) Not deposited in adipose tissue

c) Diffuse directly into portal circulation

d) All of the above

Correct Answer - D

Ans. is 'd' i.e.,All of the above [Ref Vasudevan 6" p. 160]

Metabolism of short chain fatty acids (SCFAs) and medium chain fatty acids (MCFAs) is drastically different from long chain fatty acids (LCFAs).

SCFAs and MCFAs do not require pancreatic lipase and bile salts for digestion, but required for LCFAs digestion.

SCFAs and MCFAs are directly absorbed from intestine into portal circulation, whereas LCFAs are taken by lymphatics, after incorporation into chylomicrons.

SCFAs and MCFAs are oxidized by peripheral cells and are not used for storage. LCFAs are esterified with glycerol to form triacylglycerol, storage form of lipid

305. What will you give to stop chyluria in diet?

a) Small chain FA

b) Medium chain FA

c) Long chain FA

d) Omega 3 unsaturated FA

Correct Answer - B
Ans. is 'b' i.e.,Medium Chain FA [Ref Harrison's 18thie p. 294]
Medium chain fatty acids directly enter the portal vein on absorption,bypassing the lymphatics.Hence,they are used in chyluria

306. In a person fasting overnight with carnitine deficiency, following chemicals increase in quantity in blood ?

a) Glucose

b) Fatty acids

c) Amino acids

d) Ketone bodies

Correct Answer - B

Ans. is 'b' i.e., Fatty acids [Ref : Harper 29th/e p. 208-209, 214]

In starvation, there is increased hydrolysis of TGs (of adipose tissues) into glycerol and fatty acids. Fatty acids are further oxidized by [3-oxidation in the mitochondria.

Carnitine is required for transported of activated fatty acid into mitochondria for 3-oxidation.

If carnitine is deficient, fatty acids cannot be transferred into the mitochondria, but they are continuously produced due to hydrolysis of TGs (in starvation there is decreased insulin to glucagon ratio, which stimulates hydrolysis of TGs).

Thus free fatty acid level is increased as there is increased production but no utilization (p-oxidation).

307. Serum appeary milky white in ?

a) Increased LDL

b) Increased HDL

c) Increased VLDL

d) Increased Chylomicrons

Correct Answer - D
Ans. is 'd' i.e., Increased Chylomicrons [Ref Harrison 18thle p. 3151]
"The fasting plasma is turbid, and if left at 4°C (39.2°F) for a few hours, the chylomicrons float to the top and form a creamy supernatant".
Chylomicrons are the largest lipoprotein molecule with maximum lipid contents. Therefore, they have least density and float on the top giving a creamy (milky) supernatant.

308. Adipose tissue fat metabolism is done by ?

a) Lipoprotein lipase

b) Hormone sensitive lipase

c) Acid lipase

d) Acid maltase

Correct Answer - B

Ans. is 'b i.e., Hormone sensitive lipase [Ref : Harper 29th/e chap. 16]

Adipose tissue fat (TGs) metabolism → Hormone sensitive lipase

Lipoproteins (VLDL & chylomicrons) TGs metabolism - Lipoprotein lipase

309. Enzyme deficient in Type I Hyperlipidemia is ?

a) HMG CoA reductase

b) Lipoprotein lipase

c) Cholesterol acyl transferase

d) Peroxidase

Correct Answer - B
Ans. is 'b' i.e.,Lipoprotein lipase [Ref : Harper 2e/e p. 232 table (26.1)]

310. Apo-E dificiency is seen in

a) Tpye I hypolipoproteinemia

b) Tpye II hypolipoproteinemia

c) Tpye III hypolipoproteinemia

d) Tpye IV hypolipoproteinemia

Correct Answer - C
Ans. is 'c' i.e., Tpye III hypolipoproteinemis [Ref Harison p. 3149, 3150, Chatterjea 8^{th}/e p. 45]

311. Which of the following is not affected in Abetalipoproteinemia ?

a) LDL

b) VLDL

c) HDL

d) IDL

Correct Answer - C

Ans. is 'c' i.e., HDL [Ref Chatterjea 8th le p. 462, 463 & Dinesh Puri 3rd le p. 248]

Hypolipoproteinemia

- In this group of disorders concentration of one or more lipoproteins in plasma is decreased. The commonest of these disorders are **abetalipoproteinemia, hypobetalipoproteinemia** and **hypoalphalipoproteinemia.**
- Abetalipoproteinemia:- There is defective synthesis or secretion of apoprotein-B (apo-B) in intestine and liver. So, there is deficiency **of apo-B containing lipoproteins i.e. chylomicrons°, VLDL°, IDL° and LDL°. As a result extremely low** plasma levels of cholesterol and triacylglycerols° **occurs. HDL levels are normal°** as HDL does not contain apo-B.
- Hypobetalipoproteinemia:- There is decreased synthesis of apo-B due to apo-B gene mutations. So, apo-B containing lipoproteins are synthesized at lower rate. There is slight decrease in VLDL, IDL and LDL levels. HDL is normal. Plasma cholesterol and triglycerides are decreased.
- **Hypoalphalipoproteinemia (Tangier disease):-** There is **marked deficiency of major lipoprotein HDL** (apo-A-I and apo-A-II),

probably because of accelerated catabolism.

312. In Zellweger syndrome,there is ?

a) Accumulation of long fatty acids

b) Accumulation of short chain fatty acids

c) Accumulation of very long chain fatty acids

d) Accumulation of medium chain fatty acids

Correct Answer - C
Ans. is 'c' i.e., **Accumulation of very long chain fatty acids** [Ref Harper 29^{m}/e p. **554;** Chatterjea 6th le p. 412]
Zellweger Syndrome **is** a rare inborn error **of peroxisomal fatty acid oxidation°** due to absence of functional peroxisomes in all tissues.
As a result, the long chain fatty acids are not oxidized in peroxisomes and accumulate in tissues particularly in brain, liver, kidney and muscle and usually result in death by age six.

313. Autooxidation is seen in ?

a) Cholesterol

b) Arachidonic acid

c) Stearic acid

d) Palmitic acid

Correct Answer - B
Ans. is 'b' i.e., Arachidonic acid [Ref Essential of biochemistry p. 736]
Polyunsaturated fatty acids (PUFAs) undergo peroxidation (auto-oxidation).
Amongst the given options, only arachidonic acid is PUFA.

314. Which of the following is a lipotropic factor : ?

a) Sphingomyelin

b) Histidine

c) Methionine

d) Bilirubin

Correct Answer - C
Ans. is 'c' i.e., Methionine [Ref Essentials of biochemistry/p. 761]
Lipotropic factors are substances which prevent accumulation of fat (TGs) in liver.
Primary lipotropic factors choline, betaine, methionine, lecithine, inositol.
Other factors with some lipotropic action :- Vitamin-$13_{,2}$, folic acid, casein, glycine, essential fatty acids, selenium, vitamin E and serine.

315. Hunter syndrome is due to deficiency of

a) Beta galactosidase

b) Sphingomyelinase

c) Iduronate Sulfatase

d) Hyaluronidase

Correct Answer - C
Ans. is 'c' i.e., Iduronate Sulfatase

316. Non-Essential amino acid is -

a) Tyrosine

b) Phenylalanine

c) Lysine

d) Threonine

Correct Answer - A
Ans. A. Tyrosine

317. Indole ring is present in ?

a) Tryptophan

b) Tyrosine

c) Phenylalanine

d) Threonine

Correct Answer - A

Ans. is 'a' i.e.,Tryptophan [Ref: Lehninger 4th Ie p. 80]

Some amino acids contain a special functional group in their side chain which provide some specific functions to that amino acids. These are : -

Hydroxyl group in serine and threonine	Guanidinium in arginineQ	Imidazole in histidine
Amide group in aspargine and glutamine	Benzene in phenylalanine	Phenol in tyrosine
Thioether in methionine	**Indole ring in tryptophanQ**	Pyrrolidine in proline
Sulphydryl in cysteine	13-Carboxyl in glutamic acid	E-amino in lysine
y-carboxyl in glutamic acid		

318. Xanthoproteic reaction involves-

a) Carbolic acid

b) H_2SO_4

c) HCL

d) Nitric acid

Correct Answer - D
Ans. 'D' Nitric acid
Xanthoproteic test: The ring systems in phenylalanine, tyrosine and tryptophan undergo nitration on treatment with concentrated nitric acid when heated. The end product is yellow in color which is intensified in strong alkaline medium. This reaction causes the yellow stain in the skin by nitric acid.

319. Taurine is biosynthesized by ?

a) Arginine

b) Leucine

c) Valine

d) Cysteine

Correct Answer - D

Ans. is 'd' i.e., Cysteine [Ref Harper 25^{0}/e p. 298-99]

Taurine is synthesized from cysteine by 3 enzyme-catalyzed reactions :

1. Cysteine is oxidized to cysteine sulfinate.
2. Cysteine sulfinate is decarboxylated to form hypotaurine.
3. Hypotaurine is oxidized to form taurine

320. Selenocysteine is associated with ?

a) Carbonic anhydrase

b) Catalase

c) Deiodinase

d) Transferase

Correct Answer - C

Ans. C. Deiodinase

Selenocysteine is considered as 21 standard amino acid.

- It is present at the active site of some enzymes that catalyze redox reactions, e.g. thioredoxin reductase, glutathione peroxidase, and the deiodinase (converts thyroxin to triiodothyronine).
- Biosynthesis of selenocysteine requires cysteine, serine, ATP and a specific t-RNA.
- Serine provides the carbon skeleton of selenocysteine.
- Selenocysteine has a structure similar to cysteine, but containing the trace element selenium in place of sulfur atom of cysteine.

321. Methylmalonyl aciduria is seen in deficiency of ?

a) Vit B12

b) Vit B6

c) Vit C

d) Folic acid

Correct Answer - A
Ans. is 'a' i.e., Vit B12 [Ref Harper 29"Ve p. 537]
Isomerization of methylmalonyl CoA to succinyl CoA :

- In this reaction, active form of vitamin B I 2is deoxyadenosyl cobalamine.
- Propionyl-CoA is produced as catabolic end product of some alipathic amino acids and n-oxidation of odd chain fatty acids.
- Propionyl CoA is then converted to succinyl CoA through methylmalonyl-CoA.
- Thus methylmalonyl-CoA is accumulated and excreted in urine as methylmalonic acid (methylmalonate) in vitamin B12 deficiency0, i.e. methylmalonic acidurie

322. Carnitine is synthesised from -

a) Lysine

b) Agrinine

c) Histidine

d) Choline

Correct Answer - A
Trimethyllysine and γ-butyrobetaine hydroxylases are required for the synthesis of carnitine

323. Tyrsoine is the precursor of all except ?

a) Thyroxine

b) Melanin

c) Dopmine

d) Nicotinic acid

Correct Answer - D

Ans. is 'd' i.e., Nicotinic acid [Ref: **Harper's 28th /e** p. 266, 268, 254]

Tyrosine is a precursor of many important compounds such as catecholamines (epinephrine^{Q}, **norepinephrine ^{Q}),dopamine), thyroxine^{Q}, triiodothryonine, melanin0.**

324. Which of the following enzyme is not used by liver in urea cycle ?

a) CPS-I

b) CPS-II

c) Arginase

d) Arginosuccinate

Correct Answer - B

Ans. is 'b' i.e., CPS-II [Ref **Harper 29th / e** p. 277-278]

Carbmoyl phosphate synthase II (CPS II) is involved in pyrimidine synthesis (not in urea cycle).

325. Amino acid used by liver in urea cycle ?

a) Glutamine

b) Glutamate

c) Aspartate

d) Fumarate

Correct Answer - C
Ans. is 'c' i.e., Aspartate [Ref Harper 29`"/e p. 276-278]
The source of two nitrogen atoms of urea -› one from ammonia° and one from amino group of aspartate°. Source of carbon is CO_2.
Thus out of all amino acids involved in urea cycle aspartate is consumed, while there is no net loss or gain of ornithine, citrulline, arginosuccinate or arginine. There is production of fumarate as by product°.
3 molecules of ATP are consumed (2 in first reaction and 1 in third reaction). However, 4 high energy phosphate bonds are utilized as 3rd ATP is converted to AMP+PPi.

326. Hydrolysis occurs at which step of urea cycle ?

a) Cleavage of arginine

b) Formation of Arginosuccinate

c) Formation of citrulline

d) Formation of ornithine

Correct Answer - A

Ans.'A', Cleavage of arginine

Urea synthesis is a 5 step cyclic process, with 5 distinct enzymes. The first 2 enzymes are present in mitochondria while the rest are localized in the cytosol

- Step 1. Formation of Carbamoyl Phosphate- One molecule of ammonia condenses with CO_2in the presence of two molecules of ATP to form carbamoyl phosphate. It is catalyzed by carbamoyl phosphate synthetase-I (CPS-I).
- Step 2. Formation of Citrulline- The carbamoyl group is transferred to the NH2 group of ornithine by ornithine transcarbamoylase.
- Step 3. Formation of Argininosuccinate- One molecule of aspartic acid adds to citrulline forming a carbon to nitrogen bond which provides the 2nd nitrogen atom of urea. Argininosuccinate synthetase catalyzes the reaction.
- Step 4. Formation of Arginine- Argininosuccinate is cleaved by argininosuccinate lyase (argininosuccinase) to arginine and fumarate. The enzyme is inhibited by fumarate. The fumarate formed may be funneled into the TCA cycle to be converted to malate and then to oxaloacetate to be transaminated to aspartate. Thus the urea cycle is linked to the TCA cycle through fumarate.

- Step 5. Formation of Urea- The final reaction of the cycle is the hydrolysis of arginine to urea and ornithine by arginase.

327. Urea & Kreb's cycle are linked at ?

a) Arginine

b) Ornithine

c) Oxaloacetate

d) Fumarate

Correct Answer - D
Ans. is 'd' i.e., Fumarate [Ref **Harper 25^{0}/e** p. 276-277]
Fumarate is released during urea cycle, which is an intermediate of Kreb's cycle, thus linking the two.

328. Which will activate carbomoyl phosphate synthase I?

a) Alanine

b) N-acetyl glutamate

c) Ornithine

d) None

Correct Answer - B
Ans. is 'b' i.e., N-acetyl glutamate
Carbamoyl phosphate synthase-I (CPS-I), a mitochondrial enzyme, catalyzes the formation of carbamoyl phosphate° by condensation of CO_2 and ammonia. Two molecules of ATP are required for the reaction. CPS-I is the rate limiting enzyme of urea cycle^{Q}. It is an allosteric enzyme and allosterically activated by N-acetyl glutamate

329. Transamination of Alanine results in formation of ?

a) Oxaloacetate

b) Pyruvate

c) Aspartate

d) Arginine

Correct Answer - B
Ans. is 'b' i.e., Pyruvate

330. Cofactors for glutamate dehydrogenase?

a) NAD^+

b) FAD

c) FMN

d) FADH2

Correct Answer - A

Ans. 'A' NAD^+

Anaerobic Dehydrogenases are the enzymes that catalyze the removal of hydrogen from a substrate but oxygen cannot act as the hydrogen acceptor. They, therefore, require coenzymes as acceptors of the hydrogen atoms.

When the substrate is oxidized, the coenzyme is reduced.

NAD+ is derived from nicotinic acid, a member of the vitamin B complex. The NAD+ linked dehydrogenases are-

- Glyceraldehyde-3-phosphate dehydrogenase
- Isocitrate dehydrogenase
- Malate dehydrogenase
- Glutamate dehydrogenase
- Beta hydroxy acyl CoA dehydrogenase
- Pyruvate dehydrogenase
- Alpha-ketoglutarate dehydrogenase

331. Hyperammonemia type-1 is due to deficiency of

a) Arginase

b) Arginosuccinate lyase

c) Arginosuccinate synthase

d) CPS-1

Correct Answer - D
Ans. is 'd' i.e., CPS-1 [Ref Dinesh Puri 3'/e p. 275]
Disorders caused by genetic defects of urea cycle enzymes

- Hyperammonemia type-I Hyperammonemia type-II Citrullinemia Argininosuccinic aciduria Argi ninemia

Defective enzyme

- Carbamoyl phosphate synthase-I Ornithine transcarbamoylase Argininosuccinate synthase Argininosuccinate lyase Arginase

Products accumulated

- Ammonia Ammonia Citrulline Argininosuccinate Arginine.

332. Neonatal tyrosenemia is due to deficiency of ?

a) Tyrosinase

b) Fumarylacetoacetate hyroxyase

c) Hydroxyphenyl pyruvate hydroxylase

d) Tyrosine transminase

Correct Answer - C

Ans. is 'c' i.e., Hydroxyphenyl pyruvate hydroxylase [Ref **Harper's 28th/e** p. 266, 268]

Tyrosinemia

It is a defect in metabolism of tyrosine. It may be of following types.

1. Tyrosinemia type-I (tyrosinosis/hepatorenal syndrome) : - It is due to defect infumarylacetoacetate hydroxylase deficiency. Patients with chronic tyrosinosis are prone to develop cirrhosis and hepatic carcinoma°. There is cabbage like odor in acute tyrosinosis.
2. Tyrosinemia type - II (Richer-Hanhart syndrome) : - It is due to deficiency of tyrosine transaminaseQ (tyrosine aminotransferase).
3. Neonatal tyrosinemia : - It is due to deficiency of hydroxyphenyl **pyruvate hydroxylase.**

333. Separation of proteins by their mass ?

a) Electrophoresis

b) Salting out

c) SDS-PAGE

d) Ion exchange chromatography

Correct Answer - C
Ans. is 'c' i.e., SDS-PAGE [Ref **Vasudevan** 6"die p. 600]

334. Two same charged proteins can be separated by all except -

a) Agarose

b) DEAE Cellulose

c) Sephadex

d) None of these

Correct Answer - B
Ans. is 'b' i.e., DEAE Cellulose [Ref Essentials of Biochemistry p. 670, 795]
DEAE cellulose chromatography (anion exchange) separates molecules based on molecular charge. Therefore, it cannot separate two proteins with same charge.
Agarose (sepharose) and dextran **(sephadex)** are used in gel filtration chromatography, which is based on molecular size. Thus, they can separate proteins of same charge.

335. 250 nm light is absorbed by ?

a) Arginine

b) Alanine

c) Tyrosine

d) Histidine

Correct Answer - C
Ans. is 'c' i.e.,Tyrosine
Amino acids do not absorb visible light and thus are colourless. However, **aromatic amino acids^{Q} (tryptophan, tyrosine, phenylalanine) absorb** high-wavelength (250-290 nm) UV light. **Trypytophan has the greatest absorption maxima** in this region than other two aromatic amino acids.
Thus, **aromatic amino acids are responsible for UV absorption of most proteins^{0},** maximum absorption being at 280 rim.

336. In glycolysis, inorganic phosphate is used reaction, catalyzed by ?

a) Enolase

b) Pyruvate kinase

c) Glyceraldehyde-3-p dehydrogenase

d) Aldolase

Correct Answer - C
Ans. is 'c' i.e., Glyceraldehyde-3-p dehydrogenase

337. About Denaturation of protein,which is true ?

a) Biological property persists

b) Primary structure lost

c) Always irreversible

d) Mostly renders protein insoluble

Correct Answer - D
Ans. is 'd' i.e., Mostly renders protein insoluble *[Ref Lippincott's 4thIe p.* 57]
The term denaturation refers to disruption of higher order (secondary, tertiary and quaternary) structure of protein.
All non-covalent bonds that maintain higher order structure are disrupted, but **peptide bond (covalent bond) remains intact. Thus, the primary structure is not altered during denaturation, i.e., amino acid sequence is not altered,** but denaturation **may completely disrupt secondary, tertiary and quaternary structure, e.g.,** denaturated oligomeric proteins dissociated into subunits, each with a **randam coil formation.**
Denaturation is always accompanied by a loss of biological function, e.g., enzymes are inactivated and antibodies fail to act with antigens.
Denaturation is generally irreversible, e.g., boiled egg does **not regain its original form when kept in** cold.
Denatured proteins are less soluble and in many cases they **precipitate.**

338. Ochronosis is due to accumulation of ?

a) Homogentisic acid

b) Phenylpyruvate

c) Xanthurenate

d) Glyoxylate

Correct Answer - A

Ans. is 'a' i.e., Homogentisic acid *[Ref: Harper 29th/e p. 287-289]*

Alkaptonuria

It is due to **deficiency of homogentisate oxidase.** As a result **homogentisic acid (homogentisate) is excreted execessively in urine.** There are three important characteristic features in alkaptonuria?

1. **Urine becomes dark after being exposed to air[Q].** It is due spontaneous **oxidation of** homogentisate into benzoquinone acetate, which polymerse to form black-brown pigment alkapton which imparts a characteristic **black-brown colour to urine.**
2. Alkapton deposition occurs in sclera, ear, nose, cheeks and intervertebral disc space. A condition called **ochronosis. There may be calcification of intervertebral discs** Q.
3. **Onchronosis arthritis** affecting shoulder, hips, knee.
4. **Benedict's test is strongly positive** in urine and so is the ferric chloride (Pea) test[Q]. Benedict's reagent gives a greenish brown precipitate with brownish black supernatent. Fehling's reagent ($FeC1_3$) gives blue green colour.

339. True about alkaptonuria ?

a) Deficiency of Tyrosinase

b) Urine is black

c) Banedict test is not useful

d) Fecl, test gives red colour

Correct Answer - B

Ans. is 'b' i.e., Urine is black *[Ref Nelson 18thie p. 1812]*

340. Enzyme deficient in Isovaleric acidemia

a) Isovaleryl CoA dehydrogenase

b) Phenylalanine hydroxylase

c) Arginase

d) None

Correct Answer - A
Ans. is 'a' i.e.Isolvaleryl CoA dehydrogenase
- Isovaleric acidemia is due to the defect in the metabolism of leucine.
-The enzyme defective is isovaleryl Co-A dehydrogenase.
-A characteristic odor of sweaty feet is present.
-Vomiting, acidosis, and coma follow the ingestion of excess protein. Accumulated isovaleryl-CoA is hydrolyzed to isovalerate and excreted.

341. Which of the following metabolites is involved in glycogenolysis, glycolysis and gluconeogenesis ?

a) Galactose-l-phosphate

b) Glucose-6-phosphate

c) Uridine diphosphoglucose

d) Fructose-6-phosphate

Correct Answer - B

Ans. is 'b' i.e., Glucose-6-phosphate *[Ref Harper 28th Ie* p. *166, 158]*

→ **Glucose-6-phosphate is the metabolite which :?**

1. Joins glycolysis with glycogenesis and glycogenolysis
2. Joins glycogenolysis to pentose phosphate pathway (PPP)
3. Is involved in glycolysis, glycogenesis and gluconeogenesis, glycogenolysis, gluconeogenesis, PPP

342. Why citric acid cycle called amphibolic pathway ?

a) Both exergonic and endergonic reactions takes place

b) Metabolites are utilized in other pathways

c) It can proceed both in forward and backward direction

d) Same enzymes can be used in reverse directions

Correct Answer - A

Ans. is 'a' i.e., Both exergonic and endergonic reactions takes place *[Ref : Harper 29th/e* p. *151, 166]*

Citric acid cycle is called amphibolic pathway because it acts as a link between anabolic (endothermic) and catabolic (exothermic) pathways.

343. In starvation, nitrogen is carried from muscle to liver and kidney by:

a) Alanine

b) Aspartic acid and Serine

c) Glycine

d) Asparagines

Correct Answer - A
A i.e. Alanine
In starvation , alanine and glutamine are quantitatively the most important gluconeogenic aminoacidsQ. So alanine carries nitrogen from muscle to liver & kidney for further metabolism & energy production during starvation.

344. All of the following occur in mitochondria except

a) Citric acid cycle (Kreb's cycle)

b) Glycogenolysis

c) Fatty acid oxidation

d) Electron transport chain

Correct Answer - B
B i.e. Glycogenolysis

345. HMG-CoA in liver mitochondria is inhibited by ?

a) Insulin

b) Glucagon

c) Glucocorticoid

d) Epinephrine

Correct Answer - A

Ans. is 'a' i.e., Insulin

This question is a little tricky.

<u>Effect of insulin on ketogenesis</u>

- Ketogenesis is usually associated with excessive fatty acid oxidation (lipolysis) which provides the substrate (acetyl-CoA) for ketogenesis.
- Thus, factors which inhibit lipolysis will inhibit ketogenesis (and also production of HMG-CoA).
- Insulin is an antilipolytic hormone. It inhibits lypolysis and therefore ketogenesis. Thus it decreases the synthesis of HMGCoA in ketogenesis.
- So, insulin inhibits as well as stimulates production of HMG-CoA. Then why is insulin the answer of this question ?
- Here comes the tricky part of this question. Read the question carefully examiner has asked about HMG-CoA production in liver mitochondria.
- Ketogenesis occurs in mitochondria.
- Cholesterol synthesis occurs in cytosol and smooth ER.
- Thus insulin inhibits HMG-CoA production in mitochondria but stimulates it in cytosol.

346. Organ which can utilize glucose, FA and ketone bodies is -

a) Liver

b) Brain

c) Skeletal muscle

d) RBC

Correct Answer - C

Ans. is 'c' i.e., Skeletal muscle *[Ref Harper 28th/e* p. *141]*

Skeletal muscles can utilize glucose, glycogen, fatty acids and ketone bodies.

Liver cannot utilize ketone bodies.

Brain and erythrocytes are exclusively dependent on glucose except in prolonged starvation where brain utilizes ketone bodies predominantly

347. Major source of energy for brain in fasting/ starvation ?

a) Glucose

b) Glycogen

c) Fatty acids

d) Ketone bodies

Correct Answer - D
There is no stored fuel in the brain, but it utilized 60% of total energy under resting conditions.
Glucose is virtually the sole fuel for the brain, except in prolonged starving when ketone bodies are the major source.
Fatty acids do not serve as fuel for the brain, because they are bound to albumin in plasma; hence cannot cross the blood-brain barrier.

348. Fatty acid metabolism gives ?

a) Acetyl CoA

b) Malonyl CoA

c) Ketone bodies

d) Cholesterol

Correct Answer - A
Ans. is 'a' i.e., Acetyl CoA *[Ref Harper 25^{0}/e* p. *208-210]*
Acetyl-CoA has a special central role. Acetyl-CoA is the common degradation product of glucose (by glycolysis^{Q} and PDH complex), fatty acids and ketogenic amino acids.
Its acetyl group can be utilized in synthesis *of fatty acids*^{Q}, cholesterol^{Q} and other steroids^{Q}, ketone bodies^{Q}; or can be oxidized via TCA (citric acid cycle).
In fed state acetyl-CoA is oxidised via TCA cycle and used for synthesis of fatty acids and cholesterol^{Q}, whereas in starvation it is used to synthesize ketone bodiesQ

349. Which one of the following statements concerning gluconeogenesis is correct ?

a) It occurs in muscle

b) It is stimulated by fructose 2, 6-bisphosphate

c) It is inhibited by elevated levels of acetyl CoA

d) It is important in maintaining blood glucose during the normal overnight fast.

Correct Answer - D

Ans. is 'd' i.e., It is important in maintaining blood glucose during the normal overnight fast *[Ref Mark's Basic medical biochemistry* p. 566]

During fasting, many of the reactions of glycolysis are reversed as the liver produces glucose to maintain blood glucose levels. This process of glucose production is called gluconeogenesis.

During overnight fast, blood glucose levels are maintained by both gluconeogenesis and glycogenolysis. However, after approximately 30 hours of fasting, liver glycogen stores are mostly depleted. Subsequently, gluconeogenesis is the only source of blood glucose.

350. Chemiosmotic coupling of oxidation phosphorylation is related to ?

a) Formation of ATP at substrate level

b) ATP generation of pumping of proton

c) ATP generation of pumping of neutron

d) ATP formation by transport of 0,

Correct Answer - B

Ans. is 'b' i.e., ATP generation of pumping of proton *[Ref Harper 29rdie p. 125-127]*

Chemoiosmotic theory

- It states that "free energy of electron transport" is conserved by pumping protons from mitochondrial matrix to the intermembrane space, so as to create an electrochemical proton gradient across the inner mitochondrial membrane, with outer side of membrane is positively charged as compared to inside. Electrochemical potential of this gradient is used to synthesize ATP by ATP synthase

351. Which of the following is true ?

a) Glucokinase has high affinity for glucose

b) Hexokinase has low affinity for glucose

c) Glucokinase has low affinity for glucose

d) Hexokinase is induced by insulin

Correct Answer - C

Ans. is 'c' i.e., Glucokinase has low effinity for glucose *[Ref Harper 28`"/e p. 151-152]*

Glucokinase, is specific for glucose. It has high Kin^{Q} (i.e., low affinity for glucose), high Vmax and unlike hexokinase, it is not inhibited by glucose-6-$phosphate^{Q}$. As it has low affinity for glucose (high km), it comes into play only when intracellular glucose concentration is high. It is induced by feeding and insulin. Glucagon inhibits glucokinase.

Function of hexokinase is to provide glucose-6-phosphate at a constant rate, according the needs of cells, i.e., function of hexokinase is to provide constant glucose utilization by all tissues of body even when blood sugar is low. Function of glucokinase in the liver is to remove glucose from blood after a meal, providing glucose-6-phosphate in excess of requirement for glycolysis so that it can be used for glycogen synthesis and lipogenesis.

352. Lipogenesis is stimulated by ?

a) Insulin

b) Glucagon

c) Epinephrine

d) Corticosteroids

Correct Answer - A
Ans. is 'a' i.e., Insulin *[Ref Dinesh Puri 3rdie p. 318]*

353. Anaplerotic reaction is catalyzed by ?

a) Pyruvate carboxylse

b) Enolase

c) Pyruvate kinase

d) G6PD

Correct Answer - A
Ans. is 'a' i.e., Pyruvate carboxylse *[Ref Dinesh Puri 3`die p. 177]*
Conversion of pyruvate to malate by the cytoplasmic malic-enzyme. Malate can then enter the mitochondrion as a substrate for the TCA cycle.
Pyruvate may react with aspartate or glutamate in transaminase reactions, producing the TCA cycle intermediates oxalocetate and a-ketogluarate, respectively.
Several glycogenic amino acids may serve as source of TCA intermediates

354. Substance with highest thermogenic effect ?

a) Fat

b) Proteins

c) Carbohydrate

d) All are the same

Correct Answer - B
Ans. is `b' i.e., Proteins *[Ref Progress in obesity research-397]*
Thermogenic effect (thermic effect) of food refers to the increase in metabolic rate that occurs after ingestion of particular food.
This results in an increase in the amount of heat generated by the body.
Protein is at the top of the hierarely of macronutrients, as for as the thermogenic effect in concerned. About 25-30% of energy is consumed to digest the protein.
Carbohydrates come in the middle and lipids (fats) are in third place.

355. Which of the following is not the source of cytosolic NADPH ?

a) Isocitrate dehydrogenase

b) ATP citrate lyase

c) Malic enzyme

d) G6PD

Correct Answer - B
Answer. B. ATP citrate lyase
NADPH is a cofactor used in anabolic reactions, such as lipid and nucleic acid synthesis, which require NADPH as a reducing agent. The major source of NADPH in animals and other non-photosynthetic organisms is the pentose phosphate pathway. The key enzymes in these processes are: NADP-linked malic enzyme, NADP-linked isocitrate dehydrogenase, NADP-linked glutamate dehydrogenase and nicotinamide nucleotide transhydrogenase.

356. RQ is least in ?

a) Brain

b) RBC

c) Adipose

d) Heart

Correct Answer - D
Ans. is 'd' i.e., Heart *[Ref Read below]*
Respiratory qnotient (RQ) of :
1. Carbohydrate is 1
2. Fat is 0.70
3. Protein is 0.82

Under normal condition the major fuel of heart is fatty acids, while other three organs (given in options) utilize glucose.
Thus RQ value is minimum for heart.

357. Overnight fasting what occurs ?

a) Glucose decreases

b) FFA increases

c) Increased gluconeogenesis

d) Increased beta-hydroxybutyrate

Correct Answer - C

Ans. is 'c' i.e., Increased gluconeogenesis *[Ref Vasudevan &hie p. 85, 86, Harper 28th/e p. 240, 241]*

In overnight fasting glucose level is maintained due to glycogenolysis and gluconeogenesis.

FFA and ketone bodies (p-hydroxybutyrate) starts rising after 2-3 days, i.e. in later part of initial stage of prolonged starving

358. Which of the following is a Fat Soluble vitamin ?

a) Thiamine

b) Niacine

c) Vitamin A

d) Ribaflavin

Correct Answer - C
Ans. is 'c' i.e., Vitamin A *[Ref Harper's 29^{6}/e p. 335]*

359. Ascorbic acid is required for synthesis of ?

a) Phenylserine

b) Homoserine

c) Hydroxylysine

d) Selenocysteine

Correct Answer - C

Ans. is 'c' i.e., Hydroxylysine *[Ref Harper's 29th/e p. 540]*

Hydroxylation of proline and lysine residue takes place during post-translational modification in rough ER.

The enzyme catalyzing the reactions are prolyl hydroxylase (for proline) and lysyl hydroxylase (for lysine).

Both these enzymes are dioxygenases° using molecular oxygen (0_2) and cofactor for both these enzymes is vitamin C (ascorbic acid)°. a-Ketoglutatrate is a coreductant, which is oxidized to succinate.

360. Which of the following vitamins does not participate in oxidative decarboxylation of pyruvate to acetyl CoA ?

a) Thiamine

b) Niacine

c) Riboflavin

d) Biotin

Correct Answer - D
Ans. is `d' i.e., Biotin

361. Vitamin K is required for:

March 2005

a) Chelation

b) Transamination

c) Carboxylation

d) None of the above

Correct Answer - C

Ans. C: Carboxylation

The function of vitamin K in the cell is to convert glutamate in proteins to gamma-carboxyglutamate (gla). Within the cell, vitamin K undergoes electron reduction to a reduced form of vitamin K (called vitamin K hydroquinone) by the enzyme vitamin K epoxide reductase (or VKOR).

Another enzyme then oxidizes vitamin K hydroquinone to allow carboxylation of Glutamate to gamma carboxyglutamate; this enzyme is called the gamma-glutamyl carboxylase or the vitamin K-dependent carboxylase.

The carboxylation reaction will only proceed if the carboxylase enzyme is able to oxidize vitamin K hydroquinone to vitamin K epoxide at the same time; the carboxylation and epoxidation reactions are said to be coupled reactions.

362. Pantothenic acid is needed for donating the following moiety ?

a) Acetyl (or acyl) CoA

b) Carboxyl

c) Hydroxyl

d) Amino

Correct Answer - A

Ans. is 'a' i.e., Acetyl (or acyl) CoA *[Ref Harper 29th/e p. 540]*

Pantothenic acid functions as coenzyme by providing building block of coenzyme A and ACP

1. Coenzyme-A participates in reactions of citric acid cycle, fatty acid oxidation, acetylation, and cholesterol synthesis.
2. ACP takes part in fatty acid synthesis

363. Most potent anti oxidant ?

a) Vit A

b) Vit K

c) Vit E

d) Vit C

Correct Answer - C

Ans. is 'c' i.e., Vit E *[Ref : Harper 29thie p. 532, 541, 543]*

Amongst given options, vitamin A, E and C are anti-oxidants. However, Vitamin E (tocopherol) is the most important antioxidant in the body, acting in the lipid phase of membranes protecting against the effects of free radicals.

364. Coenzyme form of pyridoxine is ?

a) ADP

b) NAD

c) PLP

d) FAD

Correct Answer - C
Ans. is 'c' i.e.,PLP [Ref Guyton 12th ie p. 854]

365. The cofactor vitamin B12 is required for the following conversion:

a) Dopamine to Norepinephrine

b) Propionyl CoA to methyl malonyl CoA

c) Methyl malonyl CoA to succinyl CoA

d) Cysteine to homocysteine

Correct Answer - C
Ans: C. Methyl malonyl CoA to succinyl CoA
(Ref: Harper 30/e p550, 558, 28ie p346)
Vitamin B12 as Cofactor for:

- Methylmalonyl CoA mutase - Isomerization of methylmalonyl co-A to succinyl co-A.
- Methionine synthase - Methylation of pyrimidine ring to form thymine.
- Homocysteine methyl transferase - Methylation of homocysteine to methionine
- Metabolism of diol.
- In bacteria for interconversion of glutamate & beta-methyl aspartate°

366. Vitamin B_1 is required for which reaction

a) Transamination

b) Oxidative decarboxylation

c) Carboxylation

d) All of the above

Correct Answer - B

Ans. is 'b' i.e.,Oxidative decarboxylation [Ref Harper 29th/e p. 534]

* Active form (coenzyme form) of thiamine is thiamine pyrophosphate (TPP), also called thiamine diphosphate (TDP).
* TPP acts as coenzyme for
 - Oxidative decarboxylation:- Pyruvate dehydrogenase, a-ketoglutarate dehydrogenase, brached-chain keto acid dehydrogenase.
 - Transketolase in PPP.

367. Pyridoxine deficiency leads to altered metabolism of?

a) Phenylalanine

b) Tryptophan

c) Methionine

d) Tyrosine

Correct Answer - B

Ans. is 'b' i.e., Tryptophan [*Ref Dineshpuri 3rd le* p. *378]*

Tryptophan load test is used for pyridoxin.

In pyridoxin (vitamin B_6) deficiency, xanturenic acid excretion is increased after giving tryptophan load dose.

368. The pyruvate utilization in tissues is decreased in ?

a) Pernicious anemia

b) Scurvy

c) Beriberi

d) Pellagra

Correct Answer - C

Ans. is 'c' i.e., Beriberi *[Ref Harper 29th/e* p. *534]*

Pyruvate utilization is decreased in thiamine deficiency. Beriberi is due to thiamine deficiency.

In thiamine deficiency, pyruvate cannot be converted to acetyl-CoA as thiamine pyrophosphate is a coenzyme for pyruvate dehydrogenase which catalyzes the conversion of pyruvate to acetyl-CoA. Hence, excess of pyruvate is metabolized to lactate by lactate dehydrogenase

369. Which of the following requires vitamin B_{12} ?

a) Serine to lysine

b) Homocysteine to methionine

c) Serine to glycine

d) Glutamine to glutamate

Correct Answer - B

Ans. is 'b' i.e., Homocysteine to methionine *[Ref: Harper 29^{6}7e p. 537-539]*

Conversion of homocystein to methionine In this reaction, active form is methylcobalamine. This is the only reaction which requires both vitamin $B_{,2}$ (as methylcobalamine) and folic acid (as N^{5}-methyl-Hdolate). The reaction is catalyzed by the enzyme cobalamin-dependent methionine synthase also called 5-methyltetrahydrofolate-homocysteine methyltransferase

370. Which micronutrient deficiency causes anemia?

a) Copper

b) Molybdenum

c) Selenium

d) Flurine

Correct Answer - A
Ans. is 'a' i.e., Copper
Copper containing protein ceruloplasmin is necessary for transport of iron in the Ferric form across membranes
Copper is an integral component of ALA synthase, which is necessary for heme synthesis
Copper helps in the uptake of iron across normoblasts

371. Adenine phosphoribosyl transferase is involved ?

a) De novo purine synthesis

b) Purine degradation

c) Salvage synthesis of purine nucleotides

d) None

Correct Answer - C

Ans. is 'c' i.e., Salvage synthesis of purine nucleotides *[Ref Harper 29th ie* p. *334-335]*

Salvage pathway of purine nucleotide synthesis

- Free purine bases (adenine, guanine and hypoxanthine) and purine nucleosides are formed in cells during the metabolic degradation of nucleic acids and nucleotides. These free purine bases and purine nucleosides are reused in the formation of purine nucleotides. This is called salvage pathway (salvage means property saved from loss). Salvage synthesis requires far less energy than de novo synthesis.

372. Uric acid is formed by ?

a) Catabolism of proteins

b) Catabolism of ketones

c) Catabolism of purines

d) Catabolism fo pyrimidines

Correct Answer - C
Ans. is 'c' i.e., Catabolism of purines

373. Beta-alanine is derived from ?

a) Adenosine

b) Guanosine

c) Thymine

d) Uracil

Correct Answer - D
Ans. is 'd' i.e., Uracil *[Ref: Harper 29^{il}le p. 339, 340]*

374. Purine are formed by ?

a) Aspartic acid, glycine, uric acid

b) Aspartate, glycine,

c) Aspartate, glutamate

d) Aspartate, glycine, glutamine

Correct Answer - D

Ans. is 'd' i.e., Aspartate, Glycine, Glutamine *[Ref Harper 29thie p. 332]*

Amino acids involved in purine synthesis → *Glycine, aspartate, glutamine.*

Amino acids involved in pyrimidine synthesis → Glutamine, aspartic acid (aspartate).

375. Which of the following is not involved in synthesis of pyrimidines?

a) Glutamine

b) CO

c) Aspartic acid

d) Glycine

Correct Answer - D

Ans. is 'd' i.e., Glycine *[Ref Harper 29th/e p. 336-337]*

Amino acids involved in purine synthesis → *Glycine, aspartate, glutamine.*

Amino acids involved in pyrimidine synthesis → Glutamine, aspartic acid (aspartate)

376. Watson crick model is for which DNA ?

a) B DNA

b) A DNA

c) C DNA

d) Z DNA

Correct Answer - A
Ans. is 'a' i.e., B DNA *[Ref : Harper 25^{0}/e p. 344]*
DNA is the repository of genetic information. DNA is located in nucleus. DNA is also present in mitochondria

377.

The anticodon region is an *important* part of the

a) r-RNA

b) m-RNa

c) t-RNa

d) hn-RNa

Correct Answer - C
C i.e. t - RNA

378. Shine dalgarno sequence is related to ?

a) Transcription

b) Translation

c) DNA replication

d) None

Correct Answer - B
Ans. is 'b' i.e., Translation
Shine dalgarno sequence in prokaryotes and Kozak consensus sequences in eukaryotes helps in initiation of protein synthesis (Translation)
In **prokaryotes,** a sequence of nucleotide bases on mRNA known as **Shine-Dalgarno sequence (SD sequence)** facilitates the binding of mRNA to the preinitiation complex. SD sequence is a purine-rich sequence of nucleotide bases, which is **located -6 to -10 bp from AUG codon°.**
In **Eukaryotes, 'Kozak consensus' sequence** surrounds AUG (initiation codon) and determines the initiating codon of mRNA.

379. Nucleotide consists of all except ?

a) Sugar

b) Phosphate

c) Fatty acid

d) Base

Correct Answer - C
Ans. is 'c' i.e., Fatty acid *[Ref Harper's 28"/e p. 286]*
Nucleotides are monomeric units of nucleic acids. They are required for synthesis of nucleic acid.
Each nucleotide is made up of : **(i) A nitrogenous base, (ii) A sugar (pentose sugar)** and **(iii) A phosphate group (phosphoric acid).** Nitrogenous base combines with a sugar to form **nucleosides.** The nucleoside combines with phosphoric acid to form a nucleotide.

380. Central Dogma of molecular biology indudes all except ?

a) Transcription

b) Translation

c) RNA replication

d) DNA replication

Correct Answer - C
Ans. is 'c' i.e., RNA replication
DNA stores genetic information :- Information about amino acid sequence of all the proteins is present in the form of genes in DNA. The entire genetic material present in the DNA of an organism is known as **genome.** The important role of DNA in transfer of information in living cells is called **central dogma of molecular biology.** According to the central dogma, information flows from DNA to RNA to protein.

381. What is the function of DNA ligase ?

a) Unwinding (denaturation) of dsDNA to provide an ssDNA template

b) Seals the single strand nick between the nascent chain and Okazaki fragments on lagging strand

c) Initiation of DNA synthesis and elongation

d) Initiates synthesis of RNA primers

Correct Answer - B

Ans. is 'b' i.e., Seals the single strand nick between the nascent chain and Okazaki fragments on lagging strand *[Ref Harper 25^{0}1e p. 367]*

382. Primase functions as ?

a) Joining DNA fragments

b) Synthesining small RNA fragments during DNA synthesis

c) Synthesising small RNA fragments during translation

d) Unwinding of DNA

Correct Answer - B
Ans. is 'b' i.e., Synthesining small RNA fragments during DNA synthesis *[Ref Harper's 29th/e p.* 366, 367]

383. What is attatched to 3' end of mRNA after transcription?

a) Poly Atail

b) CCA

c) Intron

d) 7-methylguanosine

Correct Answer - A
Ans. is 'a' i.e.,Poly Atail *[Ref: Harper's 29`h/e p. 392]*
Mammalian mRNA molecules contain a 7-methylguanosine cap structure at their 5' terminal, and most have a poly (A) tail at the 3' terminal.
Prokaryotic mRNA is functional immediately upon synthesis, i.e. prokaryotic primary transcript of mRNA is functional.
Thus it does not require post-transcriptional modification.
In Eukaryotes the primary transcript of mRNA is the hn RNA (hetrogeneous nuclear RNA).
After transcription hnRNA is extensively modified to form functional mRNA.

384. Which RNA is used in RNA splicing ?

a) mRNA

b) Small nuclear RNA

c) Small cytosolic RNA

d) tRNA

Correct Answer - B

Ans. is 'B' i.e., Small nuclear RNA *[Ref Harper 29th/e p. 378, 390]*

Splicesome Splicesome is an assembly made up of small nuclear RNA (snRNA), some proteins and hnRNA. snRNA combines with proteins to form small nuclear ribnonucleoprotein particles (snRNPs or snurps) that mediate splicing. It is snRNA component of snurps that catalyzes splicing°. Snurps are U,,U,,U_3,U4, U_5 and U6

385. Which of the following is a ribozyme?

a) Peptidyl transferase

b) Elongation factor 2

c) Primase

d) RNA polymerase

Correct Answer - A

Ans. is 'a' i.e., Peptidyl transferase *[Ref Harper 29thIe p. 405]*

- Some RNA molecules have intrinsic catalytic activity.
- The activity of these ribozymes often involves the cleavage of nucleic acid.

Two important RNA enzymes or ribozymes are : ?

- The *peptidyl transferase* that catalyzes peptide bond formation on the ribosome and Ribozymes involved in the RNA splicing.

386. Primer function is in ?

a) Transcription

b) Translation

c) Initiation of DNA replication

d) Termination of DNA replication

Correct Answer - C

Ans. is 'c' i.e., Initiation of DNA replication *[Ref Harper's 29th Ie p. 366, 367]*

DNA synthesis cannot commence with deoxyribonucleotides because DNA polymerase cannot add a mononucleotide to another mononucleotide.

Thus, DNA polymerase cannot initiate synthesis of complementary DNA synthesis strand of DNA on a totally single stranded template.

For this, they require RNA primer, which is a short piece of RNA formed by enzyme primase° (RNA polymerase°) using DNA as a template.

RNA primer is then extended by addition of deoxyribonucleotides.

Later on, the ribonucleotides of the primer are replaced by deoxyribo nucleotides.

387. Chargaff's rule states that ?

a) A=T, G=C

b) A=G, T=C

c) A=C, G=T

d) Any combination possible

Correct Answer - A

Ans. is 'a' i.e., A=T, G=C *[Ref : Harper 29th/e* p. *344 & 28th/e* p. *302; Essentials of biochemistry p. 915]*

Chargaffs rule states that in DNA of all species quantities of purines is the same as that of pyrimidines, i.e. A+G = T+C

388. In glycolysis, NADH is produced at ?

a) Pyruvate kinase

b) Enolase

c) Glyceraledehyde-3-P-dehydrogenase

d) PFK-1

Correct Answer - C
Ans. is 'c' i.e., Glyceraledehyde-3-P-dehydrogenase *[Ref Harper 28th/e p. 151-152]*
Reducing equivalent (NADH) production is catalyzed by :
Glyceraldehyde 3-phosphate dehydrogenase

389. Reverse transcription involves ?

a) RNA dependent DNA synthesis

b) DNA dependent RNA synthesis

c) DNA dependent DNA synthesis

d) RNA dependent RNA synthesis

Correct Answer - A

Ans. is 'a' i.e., RNA dependent DNA synthesis *[Ref Harper 29thIe p. 348]*

Synthesis of RNA from DNA is called transcription.

In transcription, RNA is synthesized by RNA polymerase. RNA polymerase is also called DNA dependent RNA polymerase because it is dependent on DNA (non-coding strand) for RNA synthesis.

Reverse transcription, as the name suggests, is the reverse of transcription i.e. synthesis of DNA form RNA.

In reverse transcription DNA is synthesized by reverse transcriptase. Reverse transcriptase is also called RNA dependent DNA polymerase because it is dependent on RNA for DNA synthesis.

390. Enzyme require for cutting the strand DNA synthesis?

a) DNA polymerase

b) DNA ligase

c) Topoisomerase

d) Helicase

Correct Answer - C

Ans. is 'c' i.e., Topoisomerase *[Ref Lippincott's 5th ie p. 400, 401]*

As the two strands of DNA are separated a problem is encountered, i.e. appearance of positive supercoils (supertwists) in the region of DNA aheud of replication form.

The accumulation of positive supercoiling interferes with further unwinding of the double helix.

To solve this problem, there is a group of enzymes called DNA topoisomerases which are resonsible for removing supercoils in the helix.

DNA topoisomerases are nick and seal enzymes, i.e. they have both nuclease (strand-cutting) and ligase (strand-resealing) activities.

391. Which does not play a role in protein synthesis?

a) Exon

b) Intron

c) m-RNA

d) ATP

Correct Answer - B

Ans. is 'b' i.e., Intron *[Ref Lippincott's 5tve p. 426]*

Primary transcript contains introns & exons. Splicing removes introns (segment of gene that is not represented in mature m-RNA) from primary transcript.

Synthesis of protein from mRNA is called translation. Translation is the process by which ribosomes convert the information (genetic code) carried by mRNA to the synthesis of new protein.

Translation occurs in ribosomes. Basic requirements for translation include mRNA, tRNAs, ribosomes, energy (ATP and GTP), enzymes, and specific protein factors like initiation factors, elongation factors etc.

392. Function of exonuclease -

a) Polymerization

b) Proof reading

c) Chain elongation

d) Termination

Correct Answer - B

Ans. is 'b' i.e., Proof reading *[Ref Dinesh puri 3rd /e* p. *455, 456]*

Nucleases refers to an enzyme that catalyzes hydrolysis of phosphodiester bond in a nucleic acid.

The nucleses are of two types :

* Endonucleases : Cleave the internal phosphodiester bonds.

* Exonucleases : Cleave bonds at ends. Some exonucleases cleave only at the 3' end (the 3'-exonuclease activity) while other cleave at the 5' end (the 5'-exonuclease activity).

- 3^1-exonuclease activity is responsible for proofreading. 3'-exonuclease activity is present in DNA polymerase I, II and III.

- 5^1-exonuclease activity is responsible for error correction in damaged DNA.

393. In sickle cell anemia, translocation on codon 6 is due to substitution of ?

a) Valine for glutamate

b) Glutamate for valine

c) Isoleucine for valine

d) Valine for isoleucine

Correct Answer - A

Ans. is 'a' i.e., Valine for glutamate *[Ref Harper's 29th/e* p. *444]*

Sickle cell disease, is caused by mutation of a single base out of the 3×10^9 in the genome, a T-to-A DNA substitution, which in turn results in an A-to-U change in the mRNA corresponding to the sixth codon of the 13-globin gene. The altered codon specifies a different amino acid (valine rather than glutamic acid), and this causes a structural abnormality of the p-globin molecule.

394. Which of the following usually require a RNA intermediate for cloning/replication?

a) Transposons

b) Plasmids

c) Phages

d) Cosmids

Correct Answer - A

Ans. is 'a' i.e., Transposons *[Ref : Lippincot 4th/e p. 461 & Harper 29tVe p. 436, 437]*

Transposons (Tn) are mobile segments of DNA that move in an essentially random manner from one site to another on the same or a different chromosome.

Movement is mediated by transposase, an enzyme encoded by Tn itself. Movement can be :- (i) direct, in which transposase cuts out and then inserts Tn at a new site, or (ii) replicative, in which the Tn is copied and the copy inserted else where while the origin remains in place.

In eukaryotes, including humans, replicative transposition frequently involves a RNA intermediate, in which case the transposon is called a retrotransposon i.e. tronsposons that involve a RNA intermediate are called retrotransposons

395. Chromosomal study is best carried out in ?

a) Prophase

b) Metaphase

c) Telophase

d) Anaphase

Correct Answer - B

Ans. is `b' i.e., Metaphase *[Ref: Anderson 10th ie* p. *225, 226, Robbins 8th ie* p. *158]*

Method of karyotyping

- Karyotyping is the study of coromosone.
- Dividing cells are arrested in metaphase by addition of colchicine or colcemid (deacetylmethylcolchicine).
- Subsequently, cells are exposed to a hypotonic solution to induce swelling of the cell for enhancing spreading of the chromosomes.
- The metaphase cells are then fixed with methanol/glacial acetic acid mixture and stained by one of the several banding techniques.
- After staining chromosomes are analysed under a microscope and photographed.
- Finally, a karyotype is constructed by manual or automated pattern.
- Chromosomes are arranged in pairs and decreasing order of length

396. Termination codon is ?

a) AUG

b) UAA

c) AUA

d) AGG

Correct Answer - B
Ans. **is 'b' i.e., UAA**
Initiation codon ·4AUG
Stop codons (termination codons or nonsense codons) → UAA, UGA, UAG

397. DNA microarrays allow detection of Gene mutations using?

a) Polymerase chain Reaction

b) Cloning

c) Southern Blotting

d) Hybridization

Correct Answer - D

Ans. is 'd' i.e.,Hybridization *[Ref Biology by Raven Tata* p. *331]*

DNA Microarray (DNA-Chips)

- DNA microarrays contain thusands (500-5000) of immobilized DNA probes/sequences (few dozen to hundreds of nucleotide long) from known genes organized in an area no longer than a microscope slide. DNA segments (from DNA libraries) are amplified by PCR and placed on small wells in a solid polystyrene plates, using robotic devices. Upto million such spots are deposited in a predesigned array on a surface area of just few cm'. An alternate way is to synthesize DNA directly on the solid surface using photolithography.
- C-DNA (obtained directly or from mRNA of patients particular cell type or stage) is added to each well, hybridize and fluorescence is assessed to assess genes being expressed in those cells/stage.
- This is based on principles of nucleic acid hybridization like southern or northern blot tests but allows simultaneous study of multiple genes or entire genome rather than single.
- Hybridization means binding of complementary strands of nucleic acid according to Watson-Crick rules (i.e. A = T and G =C binding).
- Southern blot for DNA and Northern blot for RNA allows the study/detection of single gene whereas microarray technique (for DNA & RNA) allows detection of multiple genes or entire genome.

So it can be considered as multiple Southern or Northern blot analysis running in parallel.

398. Which of following is an analouge guanosine ?

a) Abacavir

b) Allopurinol

c) Bromodeoxyuridine

d) None

Correct Answer - A
Ans. is 'a' i.e., Abacavir *[Ref Essentials of biochemistry* p. *888]*

399. Identification of individed by their DNA was invented by ?

a) Shapiro

b) Lewis

c) Jeffreys

d) Pasture

Correct Answer - C
Ans. is 'c' i.e.,Jeffreys *[Ref Lippicott's Sthie* p. *83, 474, Lehniger 5thie* p. *319-21]*
The DNA fingerprinting was first reported in 1984 by Sir Alec Jeffreys° at the university of leicester in England.

400. Which of the following statements regarding mature cytoplasmic messenger RNA is true ?

a) Transcribed from Nuclear DNA

b) Has Thiamine in place of Uracil

c) Sugar is Deoxy Ribose

d) Its molecular weight is more than hn-RNA

Correct Answer - A

Ans. is *'a' i.e.*, Transcribed from Nuclear DNA *[Ref: Lippincott's Biochemistry ^{5th}p.428;Fundamentals of Cytogenetics & Genetics (2010)* p. *444]*

Mesenger RNA (mRNA) is formed by the process of 'transcription' from one of the strands of double stranded nuclear DNA
and carries genetic information from the nuclear DNA to the cytosol where it is used as a template for protein synthesis.
mRNA comprises only 5-10% of total cellular RNA. It carries the information (massage) from the nucleus to the ribosome. mRNA is synthesized in the nucleus as lieterogenous RNA (hn RNA)', which is processed into functional m RNA.

401. The folds in collagen is due to ?

a) Glycine

b) Alanine

c) Arginine

d) Histidine

Correct Answer - A
Ans. is 'a' i.e., Glycine *[Ref Essentials of biochemisty* p. *868]*
In order to form a triple-helix a polypeptide chain (a-chain) must contain glycine as every third residue in the sequence.
This is because only the glycine is small enough to be accommodated in the limited space available down the central core of the triple helix.
Each turn of polypeptide chain (a-chain) contains three amino acid residues, and glycine (Gly) is present at every third positions.
Thus glycine constitutes 33% of the total amino acid residues.
The repeating amino acid residues, represented as (Gly-X-Y)n, is an absolute requirement for formation of triple helix.
X and Y can be any amino acids, but most of the time X is proline (10% of the total amino acid residues) and most of the time Y is hydroxyproline.

402. Which of the following GAG is not sulphated ?

a) Chondroitin

b) Dermatan

c) Keratan

d) Hyaluronic acid

Correct Answer - D

Ans. *is* 'd' i.e., Hyaluronic acid *[Ref: Harper's 29th le p. 596]*

A Glycosaminoglycan(GAG) is an unbranched polysaccharide made up of repeating disaccharides, one component of which is always an amino sugar (hence the name GAG), either D-glucosamine or D-galactosamine.

The other component of the repeating disaccharide (except in the case of keratan sulfate) is a uronic acid, either L-glucuronic acid (GlcUA) or its 5'-epimer, L-iduronic acid (IdUA).

Proteoglycans are proteins that contain covalently linked glycosaminoglycans.

The proteins bound covalently to glycosaminoglycans are called "core proteins".

With the exception of hyaluronic acid, all the GAGs contain sulfate groups, either as 0-esters or as N-sulfate (in heparin and heparan sulfate).

Hyaluronic acid affords another exception because there is no clear evidence that it is attached covalently to protein, as the definition of a proteoglycan given above specifies.

403. Repeatitive chains of glucosamine with uronic acid are seen in ?

a) NANA

b) Heparan sulphate

c) Keratan sulphate

d) None of these

Correct Answer - B

Ans. is `b' i.e., Heparan sulphate *[Ref Dinesh puri Yale p. 31, 32]*

Proteoglycans are made up of core protein, core trisaccharide and glycosaminoglycans.

Proteoglycans = Glycosaminoglycans + Core trisaccharide + Core protein.

Glycosaminoglycans (mucopolysaccharides) are made up of repeating diasaccharide units. Each diasaccharide unit contains?

404. Acute intermittent porphyria is due to deficiency of?

a) Uroporphyrinogen I synthase

b) Uroporphyrinogen III synthase

c) Ferrochelatase

d) ALA synthase

Correct Answer - A
Ans. is 'a' i.e.,Uroporphyrinogen I synthase *[Ref Harper 29^{t}Ve p. 313]*

405. Myoglobin contains ?

a) Iron

b) Copper

c) Zink

d) Selenium

Correct Answer - A
Ans. is 'a' i.e.,Iron *[Ref Harper 29th/e p. 308, Vasudevan 6th/e p. 242]*
Hemoproteins are proteins which have heme as prosthetic group.
Important hemoproteins are hemoglobie, myoglobinQ, cytochromesQ (cytochrome CQ, cytochrome $_{P450Q),}$ catalaseQ, peroxidase, tryptophan pyrrolase and nitric oxide synthase.
All hemoproteins contain iron as iron is the central component of heme

406. Reverse folding of proteins is carried out by ?

a) Valine

b) Threonine

c) Chaperone

d) Aspartate

Correct Answer - C
Ans. is 'c' i.e.,Chaperone *[Ref Harper's 29th/e p. 558, 559]*
Certain proteins play a role in the assembly or proper folding of other proteins without themselves being components of the latter.
Such proteins are called molecular chaperones.
Most chaperones exhibit ATPase activity and bind ADP and ATP.
This activity is important for their effect on folding

407. Rate limiting enzyme in heme synthesis ?

a) ALA synthase

b) Hmg coa reductase

c) ALA dehydratase

d) Uroporphyrinogen 1 synthase

Correct Answer - A
Ans. is 'a' i.e.,ALA synthase *[Ref Harper's 29' le p. 309]*
Heme synthesis takes place in all cells, but occurs to greatest extent in bone marrow and liver. The first step in the synthesis of heme is the condensation of glycine and succinyl Co-A to form 6-aminolevulinic acid (6-ALA), which occurs in mitochondria. This reaction is catalyzed by 6-ALA synthase which requires pyridoxal phosphate (PLP) as cofactor. This is the rate limiting step in heme synthesis.

408. Protein glycosylation occurs in ?

a) ER

b) Golgi bodies

c) Mitochondria

d) Peroxisomes

Correct Answer - A:B
Ans. is 'b > a' i.e., Golgi bodies > ER *[Ref Harper's 29th/e p. 549, 572]*
The endoplasmic reticulum and the Golgi apparatus are the major sites involved in glycosylation processes.
However, 0-glycosylation occurs only in the Golgi apparatus and so it is the organelle where all types of glycosylation reactions can take place

409. This attaches to protein before destruction ?

a) Ubiquitin

b) RNAseF

c) Zymase

d) Chaperone

Correct Answer - A
Ans. is 'a' i.e., Ubiquitin *[Ref Harper 29^{1}Ve p. 560-561]*
Ubiquitin Is a Key Molecule in Protein Degradation
There are two major pathways of protein degradation in eukaryotes. One involves lysosomal proteases and does not require ATP. The other pathway involves ubiquitin and is ATP-dependent.
It plays the major role in the degradation of proteins, and is particularly associated with disposal of misfolded proteins and regulatory enzymes that have short half-lives.

410. Weakest bond is ?

a) Covalent

b) Hydrogen

c) Electrostatic

d) Vander wall

Correct Answer - D

Ans. is 'd' i.e., Vander wall *[Ref: Harper 28th le* p. 9; *Basics of molecular biology p. 786]*

Strongest bond Covalent

Weakest bond -4 Van der walls forces

Covalent (strongest)° > Electrostatic^{0} (ionic or salt linkage) > hydrogen> hydrophobic > Van der waal's (weakest)°

411. Protein segregation occurs in ?

a) Golgi appparatus

b) Peroxisomes

c) ER

d) Mitochondria

Correct Answer - A
Ans. is 'a' i.e.,Golgi appparatus *[Ref Harper 29th/e p.* 549]
Golgi apparatus plays a major role in sorting of proteins.

412. Which of the following tripeptide ?

a) Glutathione

b) Angiotensin

c) Glucagon

d) Oxytocin

Correct Answer - A

Ans. is 'a' i.e.,Glutathione *[Ref Harper 28th Ie p. 679-680]*

Angiotensin III	Heptapeptide (6 amino acids)
Angiotensin II	Octapeptide (8 amino acids)
Oxytocin	Nonapeptide (9 amino acids)
Bradykinin	Nonapeptide (9 amino acids)
Vasopressin	Nonapeptide (9 amino acids)
Glucagon	Decapeptide (10 amino acids)
Angiotensin I	Decapeptide (10 amino acids)

413. Shortest peptide ?

a) Angiotensin II

b) Angiotensin III

c) Oxytocin

d) Vasopressin

Correct Answer - B
Ans. is 'b' i.e., Angiotensin III *[Ref Essentials of biochemistry* p. *627]*

414. In FITC the color emitted after blue light absorption? \

a) Yellow green

b) Orange red

c) Apple green

d) Golden brown

Correct Answer - A
Ans. is 'a' i.e., Yellow green
Fluorescein isothiocyanate (FITC) is a derivative of fluorescein used in wide-ranging applications including flow cytometry. FITC is the original fluorescein molecule functionalized with an isothiocyanate reactive group (-N=C=S), replacing a hydrogen atom on the bottom ring of the structure. This derivative is reactive towards nucleophiles including amine and sulfhydryl groups on proteins.
FITC (fluorescein isothiocyanate) is a fluorochrome dye that absorbs ultraviolet or blue light causing molecules to become excited and emit a visible yellow green light. This emission ceases upon removal of the light causing the excitation.

415. Oxidative deamination occurs in ?

a) Cytoplasm of all cells

b) Mitochondria of all cells

c) Cytoplasm of hepatocytes

d) Mitochondria of hepatocytes

Correct Answer - D
Ans. is 'd' i.e., Mitochondria of Hepatocytes *[Ref : Harper 29'/e p. 274]*
Deamination means removal of amino group of amino acid in the form of ammonia. Thus, an amino acid is converted to a keto acid.
Deamination coupled with oxidation is called *oxidative deamination.* It occurs in the mitochondria.
Oxidative deamination occurs primarily in the *liver (major organ) and kidney.*

416. Which isoform of LDH is raised in Anemia ?

a) LDH 5

b) LDH 4

c) LDH 3

d) LDH 2

Correct Answer - D
Ans. is 'd' i.e., LDH 2 *[Ref Chatterjea 7th/e* p. *600-605, Harper 28th/e* p. 59]
LDH-2 is found in RBCs and is increased in megaloblastic anemia.

417. In apoptosis, cytochrome C acts through -

a) Apaf 1

b) Bcl-2

c) FADD

d) TNF

Correct Answer - A
Ans. is 'a' i.e., Apaf 1
One of these proteins is cytochrome c, well known for its role in mitochondrial respiration. In the cytosol, *cytochrome* C binds to a protein called Apaf-1 (apoptosis activating factor-1), and the complex activates caspase-9. (Bc1-2 and Bcl-x may also directly inhibit Apaf-1 activation, and their loss from cells may permit activation of Apaf-1).

418. When stem cells transforms to form cells characteristic of other tissues, the process is called as -

a) De-differentiation

b) Re-differentiation

c) Trans-differentiation

d) Sub-differentiation

Correct Answer - C
Ans. is 'c' i.e., Trans-differentiation
Transdifferentiation
* Transdifferentiation takes place when a non-stem cell transform into a different type of cell, or when an already differentiated stem cell creates cells outside its already estabilished differentiation.
* Remember very important fact that it is the non-stem cell or already differentiated stem cell (i.e. mature cell) that is transformed into other type of cell. It is not stem cell that is transforming.
* Transdifferentiation is a type of metaplasia.
* Then, what is the difference between transdifferentiation and metaplasia.
* In Transdifferentiation only differentiated stem cell is transformed into other cell type, while in metaplasia any of the two, either stem cell or differentiated cell can transform into other cell type.
* So, all transdifferentiation processes are metaplasia, but not all metaplasia are transdifferentiation. o Most likely question has been wrongly framed here, there should be non-stem cell instead of stem cell in the question. Anyways answer remains the same, as no other option is related to this type of transformation.

419. Cells most sensitive to hypoxia are ?

a) Myocardial cells

b) Neurons

c) Hepatocytes

d) Renal tubular epithelial cells

Correct Answer - B
Ans. is 'b' i.e., Neurons
The susceptibility of a tissue to hypoxia influences the likelihood of infarction.
Neurons are most sensitive to hypoxia (irreversible changes develop in 3-4 minutes) followed by myocardial cells (irrversible changes develop in 20-40 minutes).
Fibroblasts are amongst the most resistent cells to hypoxia.

420. Lines of Zahn occur in -

a) Postmortem clot

b) Infarct

c) Embolus

d) Coralline thrombus

Correct Answer - D
Ans. is 'd' i.e., Coralline thrombus
It is seen in Primary platelet thrombi.

421. Dohle bodies -

a) Dilated Endoplasmic Reticulum in Neutrophils

b) Mitochondria

c) Golgi apparatus

d) Lysosomes

Correct Answer - A
Ans. is 'a' i.e., Dilated endoplasmic reticulum in neutrophils
Dohle bodies are light blue gray, bosophilic inclusions in the peripheral cytoplasm of neutrophils. o They are thought to be remnants of the *rough endoplasmic reticulum* containing RNA.

422. which of the following doesnot belong to the family of selectin?

a) P selectin

b) L selectin

c) A selectin

d) E selectin

Correct Answer - C

Ans. is 'c' i.e., A selectin

Leukocyte and endothelial adhesion molecules

Leukocyte adhesion and transmigration are regulated largely by binding of complementary adhesion molecules on the leukocyte & endothelial surface, and by chemical mediators.

Cytokines affect these processes by modulating the expression of adhesion molecules so that leukocytes can firmly adhere to endothelium.

There are four molecular families of adhesion receptors.

1. Selectin

- Selectins function in the cell to cell interaction i.e., adhesion of leukocytes to the endothelium.
- E-selectin (CD-62 E) is present on endothelial cells and it binds to sialyl-lewis. (a sialylated form of oligosaccharide on leukocytes).
- Endothelial cell expression of E-selection is a hallmark of acute cytokine-mediated inflammation.
- P-selectin (CD-62 P) is present on endothelium and platelets and it binds to sialyl-Lewis on leukocytes.
- L-selectin (CD-62 L) is present on leukocytes and it binds to mucin-like glycoprotein G1yCAM- I on the endothelium.

2.Immunoglobulin family

- Present on endothelium
- ICAM-1 (intracellular adhesion molecule-1) binds to 13_2-integrins (VLA-4) of leukocytes.
- Platelet endothelial cell adhesion molecule (PECAM or CD-31) is present on both endothelium and leukocytes. It is the major adhesive molecule for diapedesis.

3.Integrins

- Integrins promote cell-cell or cell-matrix interaction (in contrast to selectins that promote only cell-cell interaction) i.e., integrins help in adhesion of leukocytes to endothelium and adhesion of leukocytes to an extracellular matrix such as fibronectin, vitronectin, activated compliment.

Present on leukocytes

- integrins (VLA-4) bind to VCAM-1 of the endothelium.
- **P_2 -** integrins (LFA-1 and MAC-1) bind to ICAM- 1 of the endothelium.

4. Mucin like glycoprotein

- These glycoproteins are present in the extracellular matrix and on the cell surface.
- An example is Heparan sulfate, that serves as a ligand for the leukocyte adhesion molecule CD-44.

423. Cell-matrix adhesions are mediated by?

a) Cadherins

b) Integrins

c) Selectins

d) Calmodulin

Correct Answer - B
Ans. is 'b' i.e., Integrins
Cell-matrix adhesions, are usually mediated by intergrins
Cell-cell adhesions in Anchoring junctions are mediated by cadherins.

424. Following injury to a blood vessel, immediate haemostasis is achieved by -

a) Fibrin deposition

b) Vasoconstriction

c) Platelet adhesion

d) Thrombosis

Correct Answer - B
Ans. is 'b' i.e., Vasoconstriction
Hemostasis
* Hemostasis is a physiological process where by bleeding is halted, thus protecting the integrity of the vascular system after tissue injury.
* It is responsible for minimizing blood loss.
* It is commonly referred to as stoppage of bleeding.
The hemostatic mechanisms have several functions : ?
* I. Maintain blood in fluid state while circulating within the vascular system.
* Arrest bleeding at the site of injury by formation of hemostatic plug.
* Ensure the removal of hemostatic plug when healing is complete.
The components of normal hemostasis include : ?
- Blood vessels (endothelium)
- Platelets
- Plasma coagulation factors and their inhibitors.
- Fibrinolytic system.
When a blood vessel is injured, several steps occur in hemostasis at the site of injury : ?
Vasoconstriction
* After initial injury, there is a brief period arteriolar vasoconstriction, minimizing vessel diameter and slowing bleeding.

* This is due to reflex neurogenic mechanism and augmented by a potent endothelium derived vasoconstrictor endothelin.
* However this effect is transient, bleeding would resume if there will no activation of platelet and coagulation system.

Primary hemostasis

* Endothelial injury exposes highly thrombogenic subendothelial extracellular matrix to bind (adhere) with collegen of ECM.
* Binding of platelets activates these cells and platelets release secretory granules.
* These secretory products (from secretory granules) recruite additional platelets to (platelet plug).

C. Secondary hemostasis

* Coagulation system is activated and thrombin is generated.
* Thrombin converts fibrinogen to fibrin.
* Ultimately these events forms an ireversibly fused mass of platelets, thrombin RBCs and fibrinogen —> Definitive secondary hemostatic plug.

D. Repair of vessels and dissolution of clot

* The clot attracts and stimulates the growth of fibroblast and smooth muscle cells within the vessel wall, and begins repair process.
* At this stage fibrinolytic system is also activated, resulting in dissolution of the clot.

425. Maximum collagen in wound healing is seen at -

a) End of first week

b) End of second week

c) End of third week

d) End of 2 months

Correct Answer - B
Ans. is 'b' i.e., End of second week
During second week there is continued accumulation of collagen and proliferation of fibroblast. Maximum collagen is seen in second week.

426. Most potent stimulator of Naive T-cells -

a) Mature dentritic cells

b) Follicular dentritic cells

c) Macrophages

d) B-cell

Correct Answer - A
Mature Dendritic cells
Mature B-cells and T-cells before antigenic exposure are called naive-B and T cells respectively. Sequence of events in activation of naive T cells.

- Immature dendritic cells in the epidermis are called langerhans cell.
- These immature dendritic cells (langerhans cells) capture the antigen in the epidermis.
- After capturing the antigen these cells secrete cytokines.
- These cytokines cause loss of adhesiveness of langerhans cells.
- Langerhans cells separate from each other and migrate into lymphatic vessels.
- In lymphatic vessel, maturation of langerhans cells takes place.
- Then these mature langerhans dendritic cells reach to naive T cells in the lymph nodes and present antigen to these cells and activate them.

427. Common variable hypogammaglobulinemia shows *?*

a) Decreased B cell count

b) Increased B cell count

c) Compliment opsinization

d) Neutropenia

Correct Answer - C
Ans. is 'c' i.e., Normal B cells
Most patients with common variable immunodeficiency have normal or near-normal numbers of B cells in the blood and lymphoid tissues. These B cells, however, are not able to differentiate into plasma cells.
The clinical manifestations are caused by antibody deficiency.
The feature common to all patients is hypogammaglobulinemia, generally affecting all the antibody classes but sometimes only IgG.

428. Amyloidosis is most commonly seen in *?*

a) Maturity onset DM

b) Type I DM

c) Type II DM

d) HTN

Correct Answer - C
Ans. is 'c' i.e., Type II DM
The two best examples of localized amyloidosis are Alzheimer's disease and type 2 diabetes mellitus.
Localized amyloid deposition results from the production of a unique polypeptide, which contains an amyloidogenic sequence and is capable of forming a beta-pleated sheet structure necessary for these deposits to aggregate.
In type 2 diabetes it is the islet amyloid polypeptide (IAPP) also known as amylin.
In Alzheimer's the unique peptide is the beta-amyloid protein (A beta).

429. Which type ofAmyloidosis is caused by mutation of the transthyretin protein ?

a) Familial Mediterranean fever

b) Familial amyloidotic polyneuropathy

c) Dialysis associated amyloidosis

d) Prion protein associated amyloidosis

Correct Answer - B
Ans. is 'b' i.e., Familial amyloidotic polyneuropathy
Transthyretin (TTR) is normal serum protein that binds and transport thyroxine and retinol.
TTR can cause following types of amyloidosis :?

- Mutant TTR : - *Mutation* in TTR can cause syndrome of familial *amyloidotic polyneuropathy or familial amylodotic cardiomyopathy.*
- Wild (non-mutant) TTR : - There is *no mutation* of TTR and wild type TTR forms fibrils which results in senile *systemic amyloidosis (senile cardiac amyloidosis).*

430. True statement about inheritence of an X linked recessive trait is -

a) 50% of boys of carrier mother are affected

b) 50% of girls of diseased father are carrier

c) Father transmits disease to the son

d) Mother transmits the disease to the daughter

Correct Answer - A

Ans. is 'a' i.e., 50% of boys of carrier mother are affected

- all X-linked disorders are X-linked *recessive.*
- As male has only one X-chromosome, the male with affected gene on X-chromosome will always manifest the disease.
  - On the other hand, female has 2 X-chromosomes, heterozyogous female will be carrier because of expression of normal allel on the other X-chromosome.
  - 50% boys of the carrier mother will be affected.
- Father will not transmitt the disease to son as boys do not inherit X-chromosome from father.

431. Neurofibromatosis true all, except-

a) Autosomal recessive

b) Associated with cataract

c) Scoliosis

d) Multiple fibroma

Correct Answer - A
Ans. is 'a' i.e., Autosomal recessive
Neurofibromatosis comprises of two distinct disorders -
* Neurofibromatosis I
* Neurofibromatosis II
* The genes for these are located on different chromosomes.
* Both are inherited in an autosomal dominant pattern.
* The classical form of the disease with multiple neuromas is called Neurofibromatosis I and is caused by a mutation of the gene neurofibromin on chromosome 17

432. The tumor suppressor gene P53 induces cell arrest at-

a) M phase

b) S - G_2 phase

c) G_1 - S phase

d) G_o - phase

Correct Answer - C
Ans. is 'c' i.e., G_1 - S phase
Factors acting at G, S point are ***:?***
Stimulator of cycle : Cyclin D-CDK4 **(phosphorylate RB gene);** cyclin E-CDK-2.
Inhibitors of cycle : The Cip/kip family (p21, p27, p57); INK4a/ARF family (p16 INK4a, p14 ARF, p16, p17, p18, p19

433. Male to male transmission is seen in -

a) Autosomal dominant diseases

b) Autosomal recessive

c) X-linked dominant

d) M itochondrial disease

Correct Answer - A
Ans. is 'a' i.e., Autosomal dominant disease
X chromosome is not transmitted from father to son (option c is excluded) and mitochondrial disorders are always maternally inherited (option d is excluded).
Autosomal recessive disorder can be transmitted from father to son, but only if the mother is also affected or at least she is carrier. If only male is affected, autosomal recessive disorder cannot be transmitted to son.
Autosomal dominant disorder can be transmitted in any direction :-
From father to son or daughter.
From mother to son or daughter.

434. Female is affected, male is not. Disease is autosomal dominant, what is the chance in children?

a) 50% affected

b) 25% affected

c) 75% affected

d) All affected

Correct Answer - A
Ans. is 'a' i.e., 50% Affected
If one of the parent (mother or father) is affected in autosomal dominant disorder, every child has 50% of chance of having the disease and 50% of chance not having the disease.

435. Overgrowth of a skin structure at a localised region -

a) Hamartoma

b) Malignant tumor

c) Choriostoma

d) All

Correct Answer - A
Ans. is 'a' i.e., Hamartoma
Aberrant differentiation may produce a mass of disorganized but mature specialized cells or tissue indigenous to the particular site, referred to as a *hamartoma.*
An ectopic rest of normal tissue is called a *choristoma.* eg a rest of adrenal cells under the kidney capsule.
When a neoplasm, benign or malignant, produces a macroscopically visible projection above a mucosal surface and projects, it is termed a *polyp.*

436. Radiation exposure during infancy has been linked to which one of the following carcinoma -

a) Breast

b) Melanoma

c) Thyroid

d) Lung

Correct Answer - C
Ans. is 'c' i.e., Thyroid
"Differentiated thyroid carcinoma particularly papillary variety frequently follows accidental irradiation of thyroid in infancy and childhood" - Bailey

- Radiation induced cancers
- Radiation may induce some non-lethal changes in DNA sequences which may cause malignant transformation

437. Li–Fraumeni syndrome is due to mutation of which gene -

a) P 21

b) P 53

c) *P* 41

d) P 43

Correct Answer - B

Cancer arises through a series of somatic alterations in DNA that result in uncontrolled cell division.

Human cancers have following important etiological factors ?

- Genetic predisposition to cancer
- Non-hereditary predisposing conditions
- Geographic and environmental factors

Genetic (Hereditary or inherited) predisposition to cancer

- A large number of cancers have hereditary predispositions.
- Genetic predisposition may be of three types.
- Autosomal dominant Inherited cancer syndromes
- This is the most common type of genetic predisposition.

The mechanism involves uncontrolled cell division due to germline mutation of cancer suppressor gene.

Gene	Inherited predisposition
RB	Retinoblastoma
p53	Li-fraumeni syndrome
pl6INK4A	Melanoma
APC	Familial adenomatous polyposis/colon cancer
NF-1, NF-2	Neurofibromatosis 1 and 2
BRAC 1, BRAC 2	Neurofibromatosis 1 and 2

BRAC-1, BRAC-2	Neurofibromatosis 1 and 2
MEN 1, RET	Multiple endocrine neoplasia
MSN 2, MLH 1, MSH 6	Heriditary nonpolyposis colon cancer
PATCH	Nevoid basal cell carcinoma syndrome

2. Defective DNA repair syndrome

- Beside the dominantly inherited precancerous conditions, a group of cancer predisposing conditions is collectively characterized by defects in DNA repair.
- Normally, if the DNA damage is present it is repaired at cell-cycle checkpoints.
- If DNA repair mechanism is defective, cells replicate with defective DNA and mutations or chromosomal breaks are transfered in the progeny of cells that can lead to uncontrolled replication.
- Most of these conditions are inherited as autosomal recessive, e.g ?

1. Xeroderma pigmentosa
2. Fanconi syndrome
3. Bloom syndrome
4. Ataxia telangectasia

One condition in this group i
s autosomal dominant heriditory nonpolypid colon cancer (HNPCC).

3. Familial cancers

- Besides the inherited syndromes of cancer susceptibility, some cancers occur at higher frequency in certain families without a clearly defined pattern of transmission.
- That means, there is familial clustering of cases, but role of inherited predisposition is not clear for each individual.
- Example - Breast, ovarian, and pancreatic cancers.

438. Regarding desmoid tumour which is not correct ?

a) Often seen below the umbilicus

b) Unencapsulated

c) More common in women

d) Highly radiosensitive

Correct Answer - D
Ans. is `d' i.e., Highly radiosensitive
Desmoid tumour is an aggressive fibromatosis or musculoaponeurotic fibromatosis is a monoclonal fibroblastic proliferation arising in musculoaponeurotic structures.
Histologically these tumours are consist of spindle shaped cells in collagenous matrix and lack the pleomorphic, atypical or hyperchromatic nuclei of malignancy.
A minority of desmoid tumours are associated with Gardener syndrome and mutations of familial adenomatous polyposis (FAP) gene.
Most spontaneous desmoid tumours are associated with mutations of beta-catenin gene.

439. Carcinoma of lung, breast marker is -

a) CEA

b) AFP

c) 11CG

d) CA-15-3

Correct Answer - A
Ans. is 'a' i.e., CEA
Carcinoembryonic antigen is a marker in cancer of colon, pancreas, *lung, breast,* and ovary.

440. Telomerase -

a) RNA polymerase

b) Causes carcinogenesis

c) Present in somatic cells

d) Absent in germ cells

Correct Answer - B
Telomerase is a DNA polymerase (RNA dependent DNA polymerase) which is present in germ cells and is absent from most somatic cells.
Thus telomerase activity and maintenance of telomere length are essential for the replicative potential in cancer cells.

441. 7 day old MI the most sensitive biochemical marker

a) Troponin I T

b) CPK MB

c) LDH

d) Myoglobin

Correct Answer - A
Ans. is 'a' i.e., Troponin **I** T
Troponin T or I is a sensitive member and return to normal after 7-10 days (see previous explanations).

442. Vegetations in libman sacendocarditis are *?*

a) Large and fragile

b) Small warty along the line of closure of valve

c) Small or medium sized on either or both sides of valve

d) Small bland vegetations

Correct Answer - C
Ans. is 'c' i.e., Small or medium sized on either or both sides of valve
SLE, mitral and tricuspid valvulitis with small, sterile vegetations, called *Libman-Sacks endocarditis* is occasionally encountered.
The lesions are *small single or multiple, sterile, granular pink vegetations* ranging from 1 to 4 mm in diameter. The lesions may *be located on the undersurfaces* of the atrioventricular valves, on the valvular endocardium, on the cords, or on the mural endocardium of atria or ventricles.
An intense valvulitis may be present, characterized by fibrinoid necrosis of the valve substance that is often contiguous with the vegetation.
Subsequent fibrosis *and serious deformity* can result that resemble chronic RHD and require surgery.

443. Atheromatous changes of blood vessels affects early in -

a) Kidney

b) Heart

c) Liver

d) Spleen

Correct Answer - B
Ans. is 'b' i.e., Heart
Sites of Atherosclerosis
Atherosclerotic plaques develop primarily in elastic arteries (e.g., aorta, carotid and iliac arteries), and large & medium sized muscular arteries (e.g., coronary artery and poplitial arteries).
In descending order, the vessels most commonly involved are -

- Abdominal aorta (most common) → Causing aneurysm
- Coronary arteries (heart) → Causing MI
- Popliteal arteries → Causing ischemic gangrene of lower limbs.
- Internal carotid arteries → Causing stroke a Circle of willis
- Vessels usually spared are
- Vessels of upper extremities
- Mesentric and renal vessels, except at their ostia.

444. Which one of the following sets of components of cigarette smoke is a causal agent of coronary artery disease -

a) Tar and nicotine

b) Nicotine and carbon monoxide and tar

c) Carbon monoxide and Tar

d) Carbon dioxide

Correct Answer - B
Ans. is `b' i.e., Nicotine and carbon monoxide and tar
Mechanisms for smoking-induced Coronary heart disease
Carbon monoxide induces atherogenesis.
Nicotine stimulation of adrenergic drive raising both BP and myocardial oxygen demand.
Lipid metabolism with fall in protective high-density lipoproteins.
Note :

- Tar is associated with carcinogenesis (not atherosclerosis). But amongst the given options option b is the best answer as it consists of both nicotine and CO.

445. All is true about Giant cell arteritis except *?*

a) Involves large to small sized areteries

b) Granulomatous inflammation

c) Most commonly involved artery is abdominal aorta

d) Segmental nature of the involvement

Correct Answer - C
Ans. is 'c' i.e., Most commonly involved artery is abdominal aorta
It is the most common form of systemic vasculitis in adults, is an acute and chronic, often granulomatous, inflammation of arteries of large to small size.
It affects principally the arteries in the head-especially the temporal arteries— but also the vertebral and ophthalmic arteries and the aorta, where it may cause thoracic aortic aneurysm

446. Most common cause of dissecting hematoma is because of -

a) Hypertension

b) Marfan's

c) Iatrogenic

d) Kawasaki

Correct Answer - A
Ans. is 'a' i.e., Hyertension
More than 90% of dissections occur in men between the ages of 40 and 60 with antecedent hypertension.

447. Pyogenic granulom true A/E

a) Bacterial infection

b) Bleeding

c) Benign tumour

d) Capillary hemangioma

Correct Answer - A
Answer- A. Bacterial infection
Pyogenic granuloma (PG) or labular capillary hemangioma is a benign vascular tumour of the skin or mucous membrane characterized by rapid growth and friable surface.
Angiogenic growth factors such as vascular endothelial growth factors (VEGE) and decorin,transcription factors, and signal transduction pathways (MAPK) are overexpressed in pyogenic granulomas

448. Cystic medial necrosis is seen in-

a) Marfans syndrome

b) Friedrichs ataxia Pattern

c) Downs syndrome

d) Kawasaki disease

Correct Answer - A
Ans. is 'a' i.e., Marfan's syndrome

- Cystic medial necrosis (CMN) is a disorder of large arteries, characterized by an accumulation of a basophilic ground substance in the media with cyst-like lesions.
- It is known to occur in certain connective tissue diseases such as Marfan syndrome, Ehlers-Danlos syndrome, and annuloaortic ectasia, which usually result from degenerative changes in the aortic wall.
- The relationships between CMN and congenital heart defects as well as other disorders have been evidenced. The mechanisms are still controversial, even though many molecular studies have been conducted
- it is characterized by elastic tissue fragmentation and separation of the elastic and fibromuscular elements of the tunica media by small cleft like spaces where the normal elastic tissue is lost; these areas are filled with the amorphous extracellular matrix of connective tissue and resemble but are not truly cysts.

449. Medial calcification is seen in -

a) Atherosclerosis

b) Arteriolosclerosis

c) Monckebergs sclerosis

d) Dissecting aneurysm

Correct Answer - C
Ans. is 'c' i.e., Monckebergs sclerosis
First see types of arteries
Based on their size and structural features, arteries are divided into three types.
Large or Elastic arteries
Aorta

- Its large branches, eg. - Innominate, Subclavian, common carotid, iliac.
- Pulmonary arteries.

Medium sized or muscular arteries

- Small branches of aorta → Coronary, Renal
- Small arteries and arterioles
- Within substance of the tissue
- Now see their affection ?

Arteriosclerosis

- Dont get confuse with atherosclerosis.
- Arteriosclerosis means hardening of arteries by thickening and loss of elasticity of arterial wall. o There are three patterns of arteriosclerosis.

Atherosclerosis

- Characterized by intimal lesions, i.e. atheromas, which project into vascular lumen and may obstruct it. o This is the most common

pattern of arteriosclerosis.

- It involves elastic arteries, and large & medium size muscular arteries.

Arteriolosclerosis

- Seen in arterioles of patiens with hypertension and diabetes.
- Two anatomic variants are common —> hyaline and hyperplastic arteriolosclerosis.

Monkeberg medial calcific sclerosis

- It is seen in small and medium sized muscular arteries.
- It is a degenerative and apparently non-inflammatory disease.
- Media of these arteries becomes calcified.
- It occurs in patients older than 50 years.

450. Visceral aneurysm is most commonly seen in

a) Splenic

b) Renal

c) Hepatic

d) Coronary

Correct Answer - A
Answer- A. Splenic
Most common visceral artery aneurysm is splenic artery aneurysm. 2nd most common visceral artery aneurysm is hepatic artery aneurysm.

451. Raynaud's phenomenon what change is seen in vessels initial stage -

a) No change (Fibrinoid, Thrombosis)

b) Thrombosis

c) Fibrinoid necrosis

d) Hyaline sclerosis

Correct Answer - A
Ans. is 'a' i.e., No change
Structural changes in the arterial walls are absent except late in the course, when intimal thickening can appear.

452. Pulmonary infarction occurs with all except -

a) Saddle embolus at bifurcation

b) Blockage of 2nd and 3rd gen end arteries

c) Arterioles are blocked

d) None

Correct Answer - D
Ans. is 'd' i.e., None
The morphologic consequences of embolic occlusion of the pulmonary arteries depend on the size of the embolic mass and the general state of the circulation.
Large emboli may impact in the main pulmonary artery or its major branches or lodge at the bifurcation as a saddle embolus. Sudden death often ensues, owing largely to the blockage of blood flow through the lungs. Death may also be caused by acute failure of the right side of the heart (acute cor pulmonale).
Smaller emboli can travel out into the more peripheral vessels, where they may cause infarction. In patients with adequate cardiovascular function, the bronchial arterial supply can often sustain the lung parenchyma despite obstruction to the pulmonary arterial system. Under these circumstances, hemorrhages may occur, but there is no infarction of the underlying lung parenchyma. Only about 10% of emboli actually cause infarction. Although the underlying pulmonary architecture may be obscured by the suffusion of blood, hemorrhages are distinguished by the preservation of the pulmonary alveolar architecture; in such cases, resorption of the blood permits reconstitution of the preexisting architecture.

453. Creola bodies are seen in -

a) Bronchial asthma

b) Chronic bronchitis

c) Emphysema

d) Bronchiectatsis

Correct Answer - A
Ans. is 'a' i.e., Bronchial asthma
Creola bodies are a histopathologic finding indicative of bronchial asthma.
Found in a patient's sputum, they are ciliated columnar cells sloughed from the bronchial mucosa of a patient with asthma.
Other common findings in the sputum of asthma patients include *Charcot-Leyden crystals, Curschntann's Spirals, and eosinophils.*

454. Bronchogenic sequestration is seen in which lobe -

a) Left lower lobe

b) Right upper lobe

c) Left middle lobe

d) Left upper lobe

Correct Answer - A
Ans. is 'a' i.e., Left lower lobe
Bronchogenic sequestration refers to the presence of a discrete mass of lung tissue without any normal connection to the airway system.
Intralobar sequestrations are found most frequently in the *posterior basal segment of the left lower lobe.*
Blood supply to the sequestered area arises not from the pulmonary arteries but from the *aorta or its branches.*
Extralobar sequestrations are external to the lung. Found most commonly in infants as abnormal mass lesions, they may be associated with other congenital anomalies.
Intralobar sequestrations are found within the lung substance and are usually associated with recurrent localized infection or bronchiectasis.

455. Cystic fibrosis is associated with all except *?*

a) Infertility

b) Azoospermia

c) Nasal polyps

d) Renal failure

Correct Answer - D
Ans. is d i.e., Renal failure
Thick viscid plugs of mucus may also be found in the small intestine of infants. Sometimes these cause small-bowel obstruction, known as **meconium ileus.**
Chronic sinopulmonary disease manifested by : Persistent colonization/infection with typical **cystic fibrosis**
pathogens, including Staphylococcus aureus, non typeable Hemophilus influenzae, mucoid and nonmucoid Pseudomonas aeruginosa, Burkholderia cepacia; Chronic cough and sputum production, nasal polyps.
Azoospermia and infertility are found in 95% of the males who survive to adulthood; congenital bilateral absence of the vas deferens is a frequent finding in these patients.

456. In the stage of Grey hepatization -

a) WBC's fill the alveoli

b) RBC's fill the alveoli

c) Organisms fill the alveoli

d) Accumulation of fibrin

Correct Answer - D

Ans. is 'd' i.e., Accumulation of fibrin

Pathological changes of bacterial pneumonia

A.Lobar pneumonia

- Large confluent area of the lung or entire lobes are consolidated.
- The lower lobes are affected most commonly.
- There are four stages of the inflammatory response (Laennec's stages) ?

  Stage of congestion (initial phase)
- The affected lobe is enlarged, heavy, dark red and congested.
- Cut surface exudes blood-stained frothy fluid.
- There is dilatation and congestion of alveolar capillaries.
- There are few neutrophils and numerous bacteria in the alveolar fluid.

  Stage of red hepatization (early consolidation)
- The term hepatization refers to liver-like consistency of the affected lobe on cut section. o The affected lobe is red and firm.
- The edema fluid of preceding stage is replaced by strands of fibrin.
- There is marked cellular exudate of neutrophils with extravasation of red cells.
- Stage of gray hepatization (late consolidation)
- The affected lobe is grayish brown, firm and dry.
- The fibrin strand are dense and more numerous.

- There is progressive disintigration of red cells and neutrophils.
- The macrophages begin to appear in the exudate.
- The organisms are less numerous and appear as degenerated forms.

Resolution

- The previously solid and fibrinous constituent is liquefied by enzymatic action.
- Granular and fragmented strands of fibrin in the alveolar spaces are seen due to progressive enzymatic digestion.
- There is progressive removal of fluid content as well as cellular exudate from the air spaces, resulting in restoration of normal lung parenchyma with areation.

B.Bronchopneumonia

- Patchy areas of red or grey consolidation, more often multilobar and frequently bilateral and basal (lower zones) because of tendency of secretions to gravitate into lower lobes.
- There is suppurative exudate, consisting chiefly neutrophils, filling bronchi, bronchioles and adjacent alveolar spaces.
- Alveolar septa thicken due to congested capillaries and leucocytic infiltration.

457. Marker of small cell cancer of lung is -

a) Chromogranin

b) Cytokeratin

c) Desmin

d) Vimentin

Correct Answer - A
Ans. is 'a' i.e., Chromogranin
Small cell carcinoma contains.

- Polypeptide hormore e.g. PTH like peptide.
- Neuroendocrine markers -4 chromogranin, Synaptophysin, Leu7

458. Collapse of lung is called -

a) Emphysema

b) Bronchiactasis

c) Atelectasis

d) Bronchitis

Correct Answer - C
Ans. is 'c' i.e., Atelectasis
Atelectasis (collapse)
Atelectasis refers to:-
1. Incomplete expansion of lungs → Neonatal atelectasis. or
2. Collapse of previously inflated lung → Acquired atelectasis.

- This results in areas of relatively airless pulmonary parenchyma.
- Acquired atelectasis may be divided into

Resorption (obstruction) atelectasis

- It is consequence of complete obstruction of an airway.
- With time trapped oxygen in the affected alveoli is resorbed and collapse occurs.
- Resorption atelectasis is caused principally by obstruction due to excessive secretions (mucus plug) or exudates within small bronchioles as seen in *Bronchial asthma, chronic bronchitis, Bronchiactasis* and *foreign body aspiration.*

Compression atelectasis

- Collapse of lung occurs due to external perssure on lung.
- It is seen most commonly in patients with cardiac failure who develop pleural effusion and in patients with neoplastic pleural effusion.

Contraction atelectasis

- The collapse is due to contracture in the lung because of fibroctic

changes.

- Except for contraction atelectasis, atelectasis is a reversible disorder, i.e. collapsed lung parenchyma can be re-expanded.

459. Frequency of renal involvement in HSP *?*

a) 20-40%

b) >80%

c) 40-60%

d) 10%

Correct Answer - C
Ans. is 'c' i.e., 40-60%
The reported incidence of renal involvement in HSP varies considerably between different studies.
This may be because of the different criteria used to describe the involvement & the variability of the length used to follow up.
In different studies incidence of pediatric renal involvement *in* HSP was between 20-56% and in adults 50-78%

460. Most important prognostic factor of wilms tumour -

a) Histopathology

b) Ploidy of cells

c) Age < 1 yr

d) Mutation, of clp gene

Correct Answer - A
Ans. is 'a' i.e., Histopathology
Anaplastic nuclear change is the only criterion of "unfavourable" histology in Wilm's tumor and all Wilm's tumor lacking this feature are designated as having "favourable histology".
Anaplastic nuclear change reflects extreme polypoidy & is usually apparent under low magnification.
"Anaplastic histology remains a critical determinant of adverse prognosis. Even anaplasia restricted to kidney
confers an increased risk of recurrence & death, underscoring the need for correctly identifying this histologic features."

461. Renal papillary necrosis is almost always associated with one of the following conditions:
March 2004

a) Diabetes mellitus

b) Analgesic nephropathy

c) Chronic pyelonephritis

d) Post streptococcal glomerulonephritis

Correct Answer - A
Ans. A i.e. Diabetes mellitus
`*Renal papillary necrosis, an accompaniment of acute pyelonephritis is most often seen in diabetics and is characterised by necrosis of renal papillae of one or both kidneys with sharped demarcation between necrotic and living tissue' — Dorlands*
Thus while papillary necrosis is a feature of more than one conditions mentioned in the question, it is most commonly seen with diabetes mellitus.

462. Oncocytic carcinoma arises from -

a) Perivascular

b) Glomerulus

c) Loop of henle

d) Collecting duct

Correct Answer - D
Ans. is 'd' i.e., Collecting ducts
Oncocytic or Chromophobe renal carcinoma represents 5% of renal cell cancers.
It is composed of cells with prominent cell membranes and pale eosinophilic cytoplasm, usually with a halo around the nucleus.
They are, like the benign oncocytoma, thought to grow from intercalated cells of collecting ducts. o They have an excellent prognosis compared with that of the clear cell and papillary cancers.

463. Most common cause of nephrotic syndrome in adults?

a) Membranous glomerulonephritis

b) Minimal change disease

c) Acute GN

d) Focal GN

Correct Answer - A
Ans. is 'a' i.e., Membranous glomerulonephritis
Most common cause of Nephrotic syndrome

- In adults → membranous glomerulonephritis
- In children → minimal change disease (lipoid nephrosis) Causes of Nephrotic syndrome

I. Primary Glomerulonephritis	V Malignancy
1. Minimal change disease (most common in children)	1. Carcinomas
2. Membranous GN (most common in adults)	2. Myeloma
3. Membranoproliferative GN	3. Hodgkin's disease
4. Focal segmental glomerulosclerosis	VI Pregnancy
5. Focal GN	Toxaemia of pregnancy
6. IgA nephropathy	VII Circulatory Disturbances
II Systemic diseases	1. Renal vein thrombosis
1. Diabetes mellitus	2. Constrictive pericarditis

2. Amyloidosis

3. SLE

M. Systemic Infections

1. Viral infections (HBV, HCV, HIV)

2. Bacterial infections (bacterial endocarditis, syphilis, leprosy)

3. Protozoa and parasites (P. falciparum malaria, filariasis)

IV. Hypersensitivity Reactions

1. Drugs (heavy metal compounds like gold and mercury, other drugs like penicillamine, trimethadione and tolbutamide, heroin addiction)

2. Bee stings, snake bite, poison ivy

VIII. Hereditary diseases

1. Alport's disease

2. Fabry's disease

3. Nail-patella syndrome

464. Most common cause of nephritic syndrome in adults?

a) Membranoproliferative glomerulonephritis

b) FSGN

c) Membranous glomerulonephritis

d) None

Correct Answer - D
Ans. is None
Most common cause of *Nephritic syndrome* is rapidly progressive glomerulonephritis (Poststreptococcal and nonstreptococcal glomerulonephritis).
Membranous glomeruulonephritis is the most common cause of nephrotic syndrome (not nephritic syndrome) in adults.
Minimal change disease is the most common cause of nephrotic syndrome in children.

Causes of Acute Nephritic Syndrome

	Primary Glomerulonephritis		**Systemic Disease**
1.	Acute GN	1.	SLE
	Post-streptococcal	2.	Polyarteritis nodosa
	Non-streptococcal	3.	Wegener's granulomatosis
2.	Rapidly progressive GN	4.	Henoch-Schonlein purpura
3.	Membranoproliferative GN	5	Cryoglobulinaemia
4.	Focal GN		
5	IgA nephropathy		

5. IgA nephropathy

465. Podocytes are seen in -

a) Bowman's capsule

b) Proximal convoluted tubule

c) Distal convoluted tubule

d) Collecting tubule of the kidney

Correct Answer - A
Ans. is 'a' i.e., Bowman's capsule
The Bowman's capsule (capsula glomeruli/glomerular capsule) is a cup-like sac at the beginning of tubular component of a nephron.
A glomerulus is enclosed in the sac (Bowman's capsule).
Fluids from blood in the glomerulus are collected in Bowman's capsule (i.e. glomerular filtrate) and further processed along the nephron to form urine.
Outside the Bowman's capsule there are two poles.
Vascular pole → The side with afferent and efferent arterioles.
Urinary pole → The side with proximal convuluted tubule.
Inside the Bowman's capsule, the layers are as follows, from inside to outside ?
Thin layer of fenestrated endothelium
Glomerular basement membrane
Part of the glomerulus
Visceral epithelium (Podocytes)
Parietal epithelium

466. Crescents are derived from -

a) Epithelial cells + fibrin + macrophage

b) Mesangium + fibrin + macrophage

c) Tubule + mesangiaum + fibrin

d) Mesangiaum + fibrin

Correct Answer - A
Ans. is 'a' i.e., Epithelial cells + fibrin+macrophage
Renal features in RPGN
Crescent formation - crescents are forms by ?
* Cells → Parietal epithelial cells + WBCs (monocytes and macrophages)
* Fibrin strands → are prominent between the cellular layers in the crescents.
- Rupture of GBM
- Subepithelial deposits in type II RPGN
- Linear deposits in the GBM in type I RPGN.

467. Transitional cell carcinoma bladder caused by-

a) Schistosomiasis

b) Ascariasis

c) Malaria

d) None

Correct Answer - A
Ans. is 'a' i.e., Schistosomiasis

- Transitional cell carcinoma (TCC). This is the commonest cancer of the bladder.
- More than 90% of bladder tumors arise from transitional epithelial (urothelium) lining of the bladder in continuity with the epithelial lining of the renal pelvis, ureters, and the major part of the urethra.

etiology:

- Industrial occupations: Workers in industries that produce aniline dyes, rubber, plastic, textiles, and cable have a high incidence of bladder cancer.
- Schistosomiasis: There is an increased risk of bladder cancer, particularly squamous cell carcinoma, in patients having bilharzial infestation (Schistosoma haematobium) of the bladder.
- Dietary factors: Certain carcinogenic metabolites of tryptophan are excreted in the urine of patients with bladder cancer.
- Local lesions: Several local lesions in the bladder predispose to the development of bladder cancer. These include ectopia vesicae (atrophied bladder), vesical diverticulum, leukoplakia of the bladder mucosa and urinary diversion in the defunctionalized bladder.
- Smoking: Tobacco smoking is associated with a 2 to 3 fold increased risk of developing bladder cancer, probably due to

increased urinary excretion of carcinogenic substances.

- Drugs: Immunosuppressive therapy with cyclophosphamide and patients having analgesic-abuse (phenacetin-) nephropathy have a high risk of developing bladder cancer.

468. Starry sky appearance is seen in -

a) Burkitts lymphoma

b) CIL

c) Diffuse large B cell lymphoma

d) ALCL

Correct Answer - A
Ans. is 'a' i.e., Burkitts lymphoma
Burkitts lymphoma

- It includes (1) African (endemic) Burkitt lymphoma, (2) sporadic (nonendemic) Burkitt lymphoma, and (3) a subset of aggressive lymphomas occurring in individuals infected with HIV.
- The involved tissues are effaced by a diffuse infiltrate of intermediate-sized lymphoid cells containing round or oval nuclei with coarse chromatin, several nucleoli, and a moderate amount of faintly basophilic or amphophilic cytoplasm .
- The nuclear size approximates that of benign macrophages within the tumor.
- A high mitotic index is typical, as is apoptotic tumor cell death, accounting for the presence of numerous tissue macrophages with ingested nuclear debris.
- These benign macrophages are diffusely distributed among the tumor cells and have abundant clear cytoplasm, creating a characteristic "starry sky" pattern.
- All forms of Burkitt lymphoma are associated with translocations of the c-MYC gene on chromosome 8. The partner in the translocation is usually the IgH locus (t(8;14)) but may also be the ic (t(2;8)) or y (t(8;22)) light chain locus.
- Essentially all endemic tumors are latently infected with EBV.

469. B ALL iS due to -

a) T cells

b) Immature B cells

c) Immature T cells

d) Both T & B cells

Correct Answer - B
Ans. is 'b' i.e., Immature B cells
In B ALL, precursor cells are arrested at stages preceding surface expression of lg. The leukemic blasts almost always express the pan B-cell molecules CD 19 and CD 10.
In very early pre-B cell ALL; CD 19 is the only B cell-specific marker present.
Early pre-B ALL is distinguished from late pre-B ALL by the absence of cytoplasmic IgM heavy chain in the former.

470. What is the chromosomal translocation in AML M3 -

a) T (18,21)

b) T (15,17)

c) T (8, 21)

d) T (9,11)

Correct Answer - B
Ans. is 'b' i.e., T(15,17)

Class	Chromosomal abnormalities
M_z	t (8 : 21)
M_3	t (15: 17)
M4	inv (16)

471. D.I.C. is seen in :

a) >Acute promyelocytic leukemia

b) >Acute myelomonocytic leukemia

c) >CMC

d) >Autoimmune hemolytic anemia

Correct Answer - A

Acute promyelocytic leukemia *[Ref. Harrison 16'^{11}/e p 636]*

- *Disseminated intravascular coagulation is associated with promyelocytic leukemia*
- *Acute promyelocytic leukemia* (AML-M_3) constitutes 5-10% of all cases of AML
- The leukemic cells of these type of anemia are *hypergranular.*
- Granules of these leukemic cells (promyelocytes) contain *thromboplastin like material* resulting in widespread disseminated intravascular coagulation.

Also know

- Majority of M_3 cases demonstrate a *reciprocal translocation* involving chromosome 15 and 17, t (15 ; 17)

472. Helmet cells are characteristic of anemia of?

a) Hemolytic uremic syndrome

b) Polysplenia

c) Spherocytosis

d) Acanthocytosis

Correct Answer - A
Ans. is 'a' i.e., Hemolytic uremic syndrome
Schistocytes, helment cells, triangle cells, burr cells are seen in microangiopathic hemolytic anemia (MAHA). Changes in erythrocyte morphology

473. Schistocyte is/are found in -

a) TTP

b) DIC

c) Severe iron deficiency

d) All

Correct Answer - D
Ans. is all
Schistocytes

- A schistocyte is defined as an irregularly shaped erythrocyte fragment caused by mechanical trauma or an intrinsic abnormality of erythrocytes.
- Schistocytes : Mechanisms and Diseases
- Shearing by fibrin strands:
- Microangiopathic hemolytic anemia
- Disseminated intravascular coagulation
- Hemangiosarcoma o Glomerulonephritis o Myelofibrosis
- Hemolytic uremic syndrome
- Hyperspleenism Turbulent blood flow
- Congestive heart failure o Valvular stenosis
- Caval syndrome in heart worm disease
- Hemangiosarcoma Intrinsic abnormalities
- Chronic doxorubicin toxicosis
- evere iron deficiency anemia
- Pyruvate kinase deficiency
- Congenital and acquired dyserythropoiesis
- Microangiopathic hemolytic anemia can occur in :- o External impact : March hemoglobinuria
- Cardiac hemolysis : Prosthetic cardiac valves

- Fibrin deposit in microvasculature: TTP, DIC, HUS

474. Lacunar cells is seen in which type of Hodgkins Lymphoma: *September 2010*

a) Mixed cellularity type

b) Lymphocyte predominant

c) Nodular Sclerosis Type

d) All of the above

Correct Answer - C
Ans. C: Nodular Sclerosis Type
Reed-Sternberg cells (also known as lacunar histiocytes for certain types) are different giant cells found on light microscopy in biopsies from individuals with Hodgkin's lymphoma (aka Hodgkin's disease; a type of lymphoma), and certain other disorders. They are usually derived from B lymphocytes.

475. Russell bodies are found in -

a) Multiple Myeloma

b) Gonadal tumor

c) Parkinsonism

d) Intracranial neoplasms

Correct Answer - A
Ans. is 'a' i.e., Multiple Myeloma
Plasma cell tumours are characterized by dysregulated synthesis and secretion of immunoglobulin.
This sometimes leads to intracellular accumulation of intact or partially degraded immunoglobulins. This produces certain variants of plasma cells which are :
Flame cells Characterized by presence of fiery red cytoplasm.
MOTT cells Characterized by presence of multiple blue grape like cytoplasmic droplets.
Besides these there are cells containing variety of other inclusions including.
Fibrils
Russel bodies (cytoplasmic)
Crystalline rods.
Dutcher bodies (nuclear)

476. CD marker of histiocytosis is -

a) CD1A

b) CD 1B

c) CDIC

d) *CD1*D

Correct Answer - A
Ans. is 'a' i.e., CD1A
o CHIA is a T cell surface antigen important in dendritic cell presentation of glycolipids and lipopeptide antigens. **o It** is used to diagnose Langerhans cell histiocytosis.

477. Shape of birbeck granules is ?

a) Tennis racket

b) Hockey stick

c) Bat

d) Ball

Correct Answer - A
Ans. is 'a' i.e., Tennis racket
Under the electron microscope, Birbeck granules have a pentalaminar, rodlike, tubular appearance and sometimes a dilated terminal end resembling *tennis-racket appearance.*

478. The primary defect which leads to sickle cell anemia is -

a) An abnormality in porphyrin part of hemoglobin

b) Replacement of glutamate by valine in n-chain of HbA

c) A nonsence mutation in the I3-chain of HbA

d) Substitution of valine by glutamate in the a-chain of HbA

Correct Answer - B
Ans. is 'b' i.e., Replacement of glutamate by valine in 13 chain of HBA
Sickle cell anemia

- Sickle cell anemia is a hereditary hemoglobinopathy, i.e., the type of disease characterized by production of defective hemoglobin.
- Sickle cell anemia results from mutation in 13-globin gene.
- It is caused by a point mutation at the sixth position of the f3-globin chain leading to subsitution of a valine residue for a glutamic acid residue resulting in sickle hemoglobin (HbS).
- Sickle cell anemia is an autosomal recessive disorder.
  o If an individual is homozygous for the sickle cell mutation, almost all the hemoglobin in the red cell is HbS. o In heterozyogotes, only about 40% of the hemoglobin is HbS, the remainder being normal hemoglobins.

479. Intravascular hemolysis occurs in -

a) Hereditary spherocytosis

b) Acute G6PD

c) Sickle cell ds

d) b and c

Correct Answer - D
Ans. is 'b' i.e., Acute G6PD; 'c' i.e., Sickle cell dis
Extravascular hemolysis

- Hereditary spherocytosis
- Thalassemia
- Sickle cell anemia
- Autoimmune hemolytic anemia *3* Drug induced immune hemolytic anemia
- G-6-PD deficiency

Intravascular hemolysis

- Paroxysmal nocturnal hemoglobinuria o G-6-PD deficiency
- Clostridial toxin
- Falciparum malaria
- Mechanical injury to red cells
- Defective cardiac valves
- Thrombin in microcirculation
- Sickle cell anemia (minor)
  Note : - In G-6-PD deficiency both extravascular and intravascular hemolysis occur.
- In Sickle cell anemia, usually there is extravascular hemolysis but intravascular hemolysis can also occur.

480. All of the following provide protection against malaria except -

a) Duffy blood group

b) Sickle cell anemia

c) Hereditary spherocytosis

d) PNH

Correct Answer - D
Answer- D. PNH
PNH is a hemolytic anemia caused by an acquired intrinsic defect in the cell membrane.
PNH results from acquired mutation that inhibits the synthesis of Glycosylphospatidylinositol (GPI).

481. **PNH patients will be having deficient surface proteins that normally protect the red cells from activated compliments. What are the two deficient surface proteins?**

a) CD 45 and CD 59

b) CD 51 and CD 59

c) CD 55 and CD 59

d) CD58 and CD 59

Correct Answer - C
The definitive diagnosis of PNH is based on the demonstration that a substantial proportion of the patient's red cells have an increased susceptibility to complement (C), due to the deficiency on their surface of proteins (particularly CD59 and CD55).
Reference: Harrisons Principles of Internal Medicine, 18th Edition, Page 884

482. Cold agglutinin is -

a) IgG

b) IgM

c) IgA

d) IgD

Correct Answer - B
Ans. is 'b' i.e., IgM
Cold agglutinin hemolytic anemia

- This form of hemolytic anemia is caused by cold agglutinin IgM antibodies.
- Antibodies react with RBC at 0° to 4°C.
- Both intravascular and extravascular hemolysis may occur.
- IgM antibody bind to RBC and fix complement on RBC before complement mediated hemolysis occur. This transient reaction with IgM deposit C3b on RBC. C3b acts as an opsonin is that enhances the phagocytosis of RBCs in mononuclear phagocytic system of liver and spleen → extravascular hemolysis.
- However if IgM remains attached to RBC, sustained activation of complement results in formation of large amount of membrane - attack complex that destroys RBC directly --> Intravascular hemolysis.
- Causes of cold agglutinin immunohemolytic anemia : - Mycoplasma infection, I MN, CMV, Influenza, HIV, Malignant lymphoma

483. The anaemia associated with leukaemia is *?*

a) Iron deficiency

b) Megaloblastic type

c) Myelophthisic type

d) All of above

Correct Answer - C
Ans. is 'c' i.e., Myelophthisis type
Myelophthisic anemia

- Space - occupying lesions that destroy significant amount of bone marrow or disturb the marrow architecture, depress its productive capacity. This form of anemia is referred to as myelophthisic anemia.
- Characteristically, immature erythroid and myeloid progenitors appears in the peripheral blood —> Leukoerythroblastosis.
- Causes are
- Metastatic cancer (M.C. cause)
- Granulomatous disease infiltrating bone marrow.
- Myeloproliferative disorders (such as myeloid leukemia)
- Myelofibrosis

484. Maximum spherocytes is seen in -

a) Autoimmune haemolytic anemia

b) Vit B12 deficiency

c) Aplastic anemia

d) None

Correct Answer - A
Ans. is 'a' i.e., Autoimmune hemolytic anemia
Most common cause of spherocytes is immunehemolytic anemia.

485. In DIC, following are seen except -

a) Fibrinogen decreased

b) Thrombocytopenia

c) Normal APTT

d) PT elevation

Correct Answer - C
Ans. is 'c' i.e., Normal APTT

486. Not true regarding fresh frozen plasma *?*

a) Supplies major coagulation factors

b) ABO match not required

c) Should be used in replacement of factors in DIC/trauma

d) To be used within 30 minutes of having trauma

Correct Answer - D
Ans. is 'd' i.e., To be used within 30 minutes of having trauma
Fresh frozen plasma contains components of *the coagulation, fibrinolytic and complement systems and other proteins.*
FFP can be *given without blood type-matched* although agglutination reactions are possible, though very rare. o There is no mention of time period within which FFP should be given after trauma.
The risks of FFP include disease transmission, anaphylactoid reactions, alloimmunization, and excessive intravascular volume, as well as transfusion related acute lung injury and an increase in infections

487. What is the venous hematocrit level at which you will diagnose polycythemia in a newborn?

a) 55%

b) 60%

c) 65%

d) 70%

Correct Answer - C
Definition of polycythemia:
a. Venous haematocrit of over 65%.
b. Venous haematocrit of over 64% at 2 hours age.
c. An umbilical venous or arterial haematocrit over 63% or more.
The mean venous haematocrit of term infants is 53 in cord blood, 60 at 2 hours of age, 57 at 6 hours of age and 52 at 12-18 hours of age. As the haematocrit increases, there is increased viscosity and decreased blood flow. When haematocrit increases to more than 60% there is a fall in O2 transport.
Definition of hyperviscosity: Viscosity greater than 14.6 centipose at a shear rate of 11.55 as measured by a viscometer. (normal is 1.4-1.8 centipoise).

488. E cadherin gene deficiency is seen in -

a) Gastric ca

b) Intestinal ca

c) Thyroid ca

d) Pancreatic ca

Correct Answer - A
The majority of gastric cancers are not hereditary, the mutations identified in familial gastric cancer have provided important insights into mechanism of carcinogenesis in sporadic cancers.
Germline mutations in CDHI, which encodes E cadherin, a protein that contributes to epithelial intercellular adhesion are associated with familial gastric cancers, which are usually of diffuse type.
Mutations in CDH 1 are present in about 50% of sporadic cases of diffuse gastric cancers, while E cadherin expression is drastically decreased in the rest, often by methylation of the CDH I promotor.
Lobular carcinoma of breast which also tends to infilterate as single cells, & individuals with BRCA2 mutations are at increased risk of developing diffuse gastric cancers.

489. Most common site of GIST is -

a) Ileum

b) Esophagus

c) Colon

d) Stomach

Correct Answer - D
Ans. is 'd' i.e., Stomach

- Stomach --> 50-70%
- Small intestine --> 20-30%

Colon & rectum -3 5-15%
Esophagus ---> < 5%

490. Pathological manifestation of chronic alcoholism include all of the following except -

a) Piecemeal necrosis

b) Balloning degeneration

c) Microvesicular fatty changes

d) Central hyaline sclerosis

Correct Answer - A
Ans. is 'a' i.e., Piecemeal necrosis
Steatosis (fatty liver)
• Microvesicular fatty change
• Later changes to macrovesicular fatty change
Alcoholic hepatitis
• Hepatocellular necrosis
• Ballooning degeneration
• Mallory bodies
• Neutrophilic infiltration
• Perivenular and perisinusoidol fibrosis —> central hyaline
Alcoholic cirrhosis
• Nodularity
• Fibrosis

491. Thorium induced tumor

a) Angiosarcoma of liver

b) Renal cell carcinoma

c) Lymphoma

d) Astrocytoma

Correct Answer - A
Answer- A. Angiosarcoma of liver
Thorotrost (thorium dioxide) is commonly associated with liver neoplasm.
The most common liver neoplasm associated with thorium exposure
Angiosarcoma of the liver
Cholangiocarcinoma
Hepatocellular carcinoma

492. Klatskin tumor is -

a) Nodular type of cholangiocarcinoma

b) Fibrolamellar hepatocellular carcinoma

c) Gall bladder carcinoma

d) Hepatocellular carcinoma

Correct Answer - A
Ans. is 'a' i.e., Nodular type of cholangiocarcinoma
o According to their localization, cholongiocarcinomas are classified into
1. *Intrahepatic (10-20%)*
2. *Extrahepatic (80-90%)*

o The *extrahepatic forms* include perihilar tumors known as *Klastkin tumors,* which are located at the junction of the right and left hepatic ducts forming the common hepatic duct, and distal duct tumors.
o A subgroup of distal tumors arise in the immediate vicinity of ampulla of vater. Tumor of these region also include adenocarcinoma of duodenal mucosa and pancreatic carcinoma and are collectively referred to as *periampullary carcinomas.*

493. All of the following are risk factors for carcinoma gall bladder, EXCEPT -

a) Typhoid carriers

b) Adenomatous gall bladder polyps

c) Choledochal cysts

d) Oral contraceptives

Correct Answer - D
Ans. is d i.e., Oral Contraceptives

- *Risk factors for Ca Gall bladder are :*

i) Gall stones
ii) Adenomatous gall bladder polyps *(particularly polyps larger than 10 mm)*
iii) Calcified (porcelain) gall bladder
iv) Choleduochal cyst
v) Estrogens
vi) Anomalous pancreaticobiliary duct junction
vii) Exposure to carcinogens *(azotoulene, nitrosamine)*
viii) Typhoid carriers
ix) Sclerosing cholangitis

494. Nutmeg liver is seen in -

a) Right sided heart failure

b) Left sided heart, failure

c) Increased pulmonary pressure

d) Decreased pulmonary pressure

Correct Answer - A
Ans. is 'a' i.e., Right sided heart failure
o The combination of hypoperfusion and retrograde congestion (Chronic passive congestion) acts synergistically to generate centrilobular hemorrhagic necrosis. The liver takes on a variegated mottled appearance reflecting hemorrhage and necrosis in the centrilobular regions, know as nutmeg liver.
o Chronic passive congestion is seen in RHF.

495. Central stellate scar is seen in

a) Focal nodular hyperplasia

b) Chronic regenerative hyperplasia

c) Hepatoblastoma

d) None

Correct Answer - A

Answer- A. Focal nodular hyperplasia

- Focal nodular hyperplasia is a rare tumor-like condition predominantly found in women during to third to the fifth decade of life.
- Most commonly it is incidentally discovered as asymptomatic mass.
- The pathognomonic microscopic feature.
- A central stellate scar seen in liver imaging studies is a highly characteristic feature of focal nodular hyperplasia.
- It is also seen in Renal cell carcinoma(RCC).

496. Histopathology of chronic hepatitis -

a) Ball oning

b) Councilman bodies

c) Bridging necrosis

d) All

Correct Answer - C
Ans. is 'c' i.e., Bridging necrosis
. *Portal tracts show severe chronic inflammation with inflammatory cells extending into the liver lobules disrupting the limiting plate of hepatocytes.*
- *Piecemeal necrosis* - *Portal fibrosis*
. *Bridging necrosis* - *Interface hepatitis*

497. Spongiform degeneration of cerebral cortex occurs in -

a) Creutzfeldt-Jakob disease

b) Subacute sclerosing panencephalitis

c) Fatal familial insomnia

d) Cerebral toxoplasmosis

Correct Answer - A
Ans. is *'a' i.e.,* Creutzfeldt-Jakob disease
o On microscopic examination, in *Creutzfeldt-Jakob disease* the pathognomonic finding is a spongiform transformation of the cerebral cortex and, often, deep gray matter structures (caudate, putamen); this consists of a multifocal process that results in the uneven formation of small, apparently empty, microscopic vacuoles of varying sizes within the neuropil and sometimes in the perikaryon of neurons. In advanced cases, there is severe neuronal loss, reactive gliosis, and sometimes expansion of the vacuolated areas into cystlike spaces ("status spongiosus").
o Kuru plaques are extracellular deposits of aggregated abnormal protein; they are Congo red-positive as well as PAS-positive and occur in the cerebellum in cases of *Gerstmann-Striiussler-Scheinker syndrome;* they are present in abundance in the cerebral cortex in cases of variant CJD.
o In all forms of prion disease, immunohistochemical staining demonstrates the presence of proteinase-K-resistant PrPsc in tissue.
o *Fatal familial insomnia* does not show spongiform pathology. Instead, the most striking alteration is neuronal loss and reactive gliosis in the anterior ventral and dorsomedial nuclei of the thalamus;

neuronal loss is also prominent in the inferior olivary nuclei.

498. What is the histological appearance of brain in Creutzfeldt-Jakob disease -

a) Neuronophagia

b) Spongiform change in brain

c) Microabscesses

d) Demyelination

Correct Answer - B
Ans. is 'b' i.e., Spongiform change in brain
o The classic histologic appearance in *Creutzfeldt-Jakob disease* is *spongiform change in the gray matter :* in all six cortical layers in the cerebral cortex or with diffuse involvement of the cerebellar molecular layer. These vacuoles appear glassy or eosinophilic and may coalesce. *Neuronal loss and gliosis* are also seen.

499. Which of the following tumors is not derived from meninges -

a) Hemangioblastoma

b) Meningioma

c) Fibrous tumor

d) Hemangiopericytoma

Correct Answer - A
Ans. is 'a' i.e., Haemangioblastoma
Meningeal tumors
o *Meningothelial tumor : Meningioma* (most common meningeal tumor).
o *Mesenchymal non-meningothelial tumors : Meningeal solitary fibrous tumor, hemangiopericytoma,* meningeal sarcoma, fibrous histiocytoma, meningeal melanocytoma, (melanocytic tumor).

500. Which of the following is most reliable feature of malignant transformation of pheochromocytoma *?*

a) Presence of mitotic figures

b) Capsular invasion

c) Vascular invasion

d) None

Correct Answer - D
Ans. is None
"Because benign and malignant pheochromocytomas may have an identical histological appearance, the only absolute criterion of malignancy is metastasis."
"The diagnosis of malignant pheochromocytoma is made only when metastasis is demonstrated."

501. Tumor that follows rule of 10 is-

a) Pheochromocytoma

b) Oncocytoma

c) Lymphoma

d) Renal cell carcinoma

Correct Answer - A
Ans. is 'a' i.e., Pheochromocytoma
o *Pheochromocytomas* usually subscribe to a convenient *"rule of 10s" :-*

10% of pheochromocytomas arise in association with one of several familial syndromes. These include the MEN-2A & MEN-2B syndromes, type I neurofibromatosis, von Hippel-Lindau syndrome & Sturge-Weber syndrome.

10% of pheochromocytomas are extra-adrenal, occurring in sites such as organ of Zuckerkandl & carotid body, where these chromaffin-negative tumors are usually called *paragangliomas* to distinguish them from pheochromocytomas.

10% of nonfamilial adrenal pheochromocytomas are bilateral; this figure may rise to 70% in cases that are associated with familial syndromes.

10% of adrenal pheochromocytomas are biologically malignant, although the associated hypertension represents a serious & potentially lethal complication of even "benign" tumors.
10% of adrenal pheochromocytomas arise in childhood, usually the familial subtypes, and with a strong male preponderance. The nonfamilial pheochromocytomas most often occur in adults between 40 & 60 years of age, with a slight female preponderance.

502. True about Psammoma bodies are all except *?*

a) Seen in meningioma

b) Concentric whorled appearance

c) Contains Calcium deposits

d) Seen in teratoma

Correct Answer - D
Ans. is 'd' i.e., Seen in teratoma
o Psammoma bodies represent a process of dystrophic calcification.
o Single necrotic cells may constitute seed crystals that become encrusted by the *mineral* deposits. The progressive acquisition of outer layers may create lamellated configurations, called psammoma bodies because of their resemblance to grains of sand.
o Psammoma bodies are seen in : *papillary cancer of thyroid, meningioma, papillary serous cystadenocarcinoma of ovary.*

503. In thymoma, all are seen except -

a) Hypogamma globulinemia

b) Hyperalbuminemia

c) Red cell aplasia

d) Myaesthenia Gravis

Correct Answer - B
Ans is (b) i.e. hyperalbuminemia

- Thymoma is the most common Anterior mediastinal mass.
- Thymomas are seen to be associated with

Myasthenia gravis
Acquired hypogammaglobulinemia
Pure red cell aplasia Grave's ds
- *Pernicious anemia*
- *Dermatomyositis-polymyositis*
- *Cushing syndrome*

504. Orphan annie eye nuclei appearance is characteristic of -

a) Papillary carcinoma thyroid

b) Carcinoma pituitary

c) Paraganglioma

d) Meningioma

Correct Answer - A
Ans. is 'a' i.e., Papillary carcinoma thyroid
o The nuclei of papillary carcinoma cells contain finely dispersed chromatin, which imparts an optically clear or empty appearance, giving rise to the designation ground glass or Orphan Annie eye nuclei.

505. Most common malignancy of fallopian tube

a) SCC

b) Serous CA

c) Teratoma

d) Chorioca

Correct Answer - B
Answer- B. Serous CA
Serous - 49.5% - 83.3%

506. Rokitanski protruberences are seen in -

a) Mucinous carcinoma

b) Teratoma

c) Epidermal cystoids adenoma

d) Papillary carcinoma

Correct Answer - B
Ans. is 'b' i.e., Teratoma
Teratoma
o Teratomas are divided into three categories:
(1) Mature (benign):
Most benign teratomas are cystic and are known as dermoid cysts.
These neoplasms are presumably derived from the ectodermal differentiation of totipotential cells.
They are bilateral in 10% to 15% of cases.
Characteristically, they are unilocular cysts containing hair and cheesy sebaceous material. On section, they reveal a thin wall lined by an opaque, gray-white, wrinkled, apparent epidermis.
Generally, in one area of the cyst wall, a solid prominence is seen known as *Rokitansky's protuberance* where tissue elements such as tooth, bone, cartilage & various other odd tissues are present.
On histologic examination, the cyst wall is composed of stratified squamous epithelium with underlying
sebaceous glands, hair shafts, and other skin adnexal structures. In most cases, *structures from other germ layers can be identified, such as cartilage, bone, thyroid tissue, and other organoid formations.*

Dermoid cysts are sometimes incorporated within the wall of a mucinous cystadenoma.

About 1% of the dermoids undergo malignant transformation of any one of the component elements (but most commonly, squamous cell carcinoma).

(2) Monodermal or Specialized Teratomas

The rare group of tumors, the most common of which are *struma ovarii and carcinoid.*

They are always unilateral, although a contralateral teratoma may be present.

Struma ovarii is composed entirely of mature thyroid tissue. Interestingly, these thyroidal neoplasms may hyperfunction, causing hyperthyroidism.

The ovarian carcinoid, which presumably arises from intestinal epithelium in a teratoma, might in fact be functioning, particularly in large tumors, producing 5-hydroxytryptamine and the carcinoid syndrome.

(3) Immature Malignant Teratomas

These are rare tumors that differ from benign teratomas in that the *component tissue resembles that observed in the fetus or embryo rather than in the adult.*

The tumor is found chiefly in prepubertal adolescents and young women.

These grow rapidly and frequently penetrate the capsule with local spread or metastases.

On microscopy, there are varying amounts of immature tissue differentiating toward cartilage, glands, bone, muscle, nerve, and others.

An important risk for subsequent extraovarian spread is the histologic grade of tumor, which is based on the proportion of tissue containing immature neuroepithelium.

507. Which is not a risk factor of endometrial carcinoma -

a) Obesity

b) Smoking

c) Infertility

d) Tamoxifen

Correct Answer - B

Ans. is 'b' i.e., Smoking

Endometrial carcinoma

- Endometrial carcinoma is the most common invasive cancer of the female genital tract and accounts for 7% of all invasive cancer in women.
- The peak incidence is in the 55- to 65-year-old woman.
- Clinicopathological studies & molecular analysis support its classification into two major broad categories.

Type-I Carcinoma

- Most common type.
- Majority are well differentiated & mimic proliferative endometetrial glands.
- They are associated with- obesity, diabetes, hypertension, infertility and unopposed estrogen stimulation. Tamoxifen also increases the risk of endometrial cancer.
- Endometrial hyperplasia is a precursor to endometroid carcinoma.
- Mutation in PTEN tumor suppressor gene have been seen in 30-80% of endometeriod carcinoma & 20% patients with endometrial hyperplasia.
- Additional molecular changes that are common are microsatellite instability & mutations in KRAS & beta catenin oncogenes.

Type-H Carcinoma

- These occur in women a decade later than type I carcinoma.
- These usually arise in setting of endometrial atropy.
- They are poorly differentiated. The most common subtype is serous carcinoma, clear cell type & malignant mixed mullerian tumor.
- The most frequent alteration described is mutation in p53 tumor suppressor gene.

508. Which of the following germ cell tumor is malignant *?*

a) Leydig cell tumor

b) Sertoli cell tumor

c) Seminoma

d) Dermoid cyst

Correct Answer - C

Ans. is 'c' i.e., Seminoma

o Among the given options only options c & d are germ cell tumors.

Seminoma is malignant while dermoid cyst is benign.

Germ cell tumors

o ***Malignant -*** Germinoma (seminoma, dysgerminoma), embryonal carcinoma, endodermal sinus tumor (yolk sac tumor), choriocarcinoma, immature teratoma.

- ***Benign -*** Mature teratoma, dermoid cyst.

509. ER positive status in Ca Breast indicates -

a) Prognosis

b) Etiology

c) Site

d) None

Correct Answer - A
Ans. is 'a' i.e., Prognosis
o Estrogen receptor (ER) positive breast carcinomas are generally slow growing and respond well to hormonal treatment.
o Gene expression prolifing, which can measure the relative quantities of mRNA for essentially every gene, has identified five major patterns of gene expression in invasive ductal carcinoma.
Luminal A
o This is the *largest group* (40-55%) which has characteristics of normal luminal cells.
o This type is *ER positive and HER2/neu negative.*
o These cancers are generally slow growing and respond to hormonal treatment. Conversely only a small number will respond to standard chemotherapy
Luminal B
o These tumors are *ER positive, has a higher proliferative rate and overexpresses HER2/neu ---> Triple-positive cancer.*
o They compose a major group of ER-positive cancers that are more likely to have lymphnode metastases and may respond to standard chemotherapy.
Normal breast line
o These are ERpositive, *HER2/neu negative* and characterized by

the similarity of their gene expression pattern to normal tissue.
Basal line
o These are *ER negative, PR negative, HER2/neu negative Triple negative.*
o These are characterized by *expression of markers typical of myoepithelial cells (e.g., basal keratins, Pcodherins, p63, or laminin), progenitor cells, or putative stem cells (e.g. cytokeratins 5 and 6).* o Many *carcinoma arising in women with BRAC I mutations are of this type.*
o These are aggressive tumors, frequent metastasis to viscera and brain can be seen ---> have poor prognosis.
HER2 positive
o These are *ER negative and overexpress HER 2/neu protein.*

510. Proliferating breast mass is -

a) Duct ectasia

b) Fibroadenoma

c) Adenosis

d) Papilloma

Correct Answer - D
Ans. is 'd' i.e., Papilloma
Examples include atypical ductal hyperplasia, atypical lobular hyperplasia, and intraductal papillomas.

511. Tadpole cells comma shaped cells on histopathology are seen in -

a) Trichoepithelioma

b) Spideroma

c) Rhabdomyosarcoma

d) Histiocytoma

Correct Answer - C

Ans. is 'c' i.e., Rhabdomyosarcoma

Histology of rhabdomvosarcoma

- The diagnostic cell of rhabdomyosarcoma is rhabdomyoblast.
- Rhabdomyoblast contains eccentric eosinophilic granular cytoplasm rich in thick and thin filaments. o The rhabdomyoblasts may be ?

i) Round

- Elongated Tadpole or Strap cells.
- It has three variants

ii) Embryonal

- Alveolar

iii) Pleomorphic

- Rhabdomyoblasts are positive for *desmin, MYOD1* and *Myogenin*.

512. Glomus tumor is seen in -

a) Retroperitoneum

b) Soft tissue

c) Distal portion of digits

d) Proximal portion of digits

Correct Answer - C
Ans. is 'c' i.e., Distal portion of digits
o It is a benign but painful tumor that arises from the modified smooth muscle cells of the *glomus body, a specialized arteriovenous anastomosis* that is involved in thermoregulation.
o They are *most commonly found in the distal portion of the digits,* especially under the fingernails.

513. Ewings sarcoma arises from -

a) G cells

b) Totipotent cells

c) Neuroectodermal cells

d) Neurons

Correct Answer - C
Ans. is c i.e., Neuroectodermal cells
o Histologically, Ewing's sarcoma has a certain resemblance to primitive neuroectodermal cells, and the tumor arises from such cells.
o It is a rare malignancy primarily affecting children and adolescents. It arises mainly in bone and less commonly in soft tissues.
o In these, there is a characteristic reciprocal chromosomal translocation, which leads to an in-frame fusion between the EWS gene and one of the ETS family gene members.

514. Medulloblastoma most common metastasis is to *?*

a) Lung

b) CNS

c) Liver

d) Spleen

Correct Answer - B
Ans. is 'b' i.e., CNS
o Medullablastoma spread through CSF and frequently metastasizes to different locations in the brain and spine.
o Extraneural metastasis to the rest of the body is rare.

515. Mutation in malignant melanoma-

a) N-myc

b) CDK2A

c) RET

d) None

Correct Answer - B
Ans. is 'b' i.e., CDK2A
"In melanoma cells, numbers of mutations and/or dysregulated expression of B-Rof N-Ras, CDK2A, MDM2, PTEN, p53 have been recognized".

516. Perivascular lymphocytes & microglial nodules are seen in -

a) Multiple sclerosis

b) HIV encephalitis

c) CMV meningitis

d) Bacterial meningitis

Correct Answer - B
Ans. is 'b' i.e., HIV encephalitis
o Perivascular infiltrate of lymphocytes (and macrophages) with microglial nodules is seen in HIV encephalitis.
o Perivascular infiltrate of lymphocytes (and monocytes) is also seen in multiple sclerosis. But, microglial nodules
are characteristic of HIV encephalitis.

517. Glomus cells are found in -

a) Bladder

b) Brain

c) Chemoreceptors

d) Kidney

Correct Answer - C
Ans. is 'c' i.e., Chemoreceptors

- Arterial chemoreceptors consist of globular aggregations of chemoreceptive cells (glomus cells), and supportive cells, separated from one another by fibrous tissue septa.
- In these setpa and between glomus cells, numerous capillaries and nerve fibers are seen.
- The glomus cells have the structure of endocrine amine hormone secreting cells.

518. Commonest tumor of face in chidren is-

a) Rhabdomyosarcoma

b) Sq. cell carcinoma

c) Basal cell carcinoma

d) Mixed parotid tumor

Correct Answer - A
Ans. is 'a' i.e., Rhabdomyosarcoma
<u>Rhabdomyosarcoma</u>
o The most common soft tissue sarcoma in children is rhabdomyosarcoma.
o The common site of involvement are : -
o *Head & Neck (25%) 2"^{d} most common* Extremities
Genitourinary (22%) —> 2nd most common
Retroperitoneum

519. Most common site for medulloblastoma is-

a) Cerebellum

b) Pituitary

c) Cerebrum

d) Pineal gland

Correct Answer - A
Ans. is 'a' i.e., Cerebellum
o Medulloblastoma is an infratentorial tumor and occurs exclusively in cerebellum.

520. Type B adverse drug reaction -

a) Augmented effect of drug

b) Unpredictable Bizzare reaction

c) Effect seen on chronic use of drug

d) Delayed effect of drug

Correct Answer - B
Ans. is 'b' i.e., Unpredictable Bizzare reaction
Types of adverse drug reaction
1. Types A (Augmented) reaction.
2. Types B (Bizzare) reaction
3. Types C (Chronic) reaction
4. Types D (Delayed) effects
5. Types E (Ending of use) reaction

521. Dopamine all of the following is true Except?

a) *Causes* increase in GI Isehemia

b) Positive ionotropic

c) Improves renal perfusion

d) Causes Vasoconstriction

Correct Answer - A
Ans. is 'a' i.e., Causes increase in GI Ischemia
o Dopamine acts on dopamine (D_i & D_2) and adrenergic (a_1 + a_2 + $[3_1$) receptors, with no action on p, receptors.
o At lowest effective dose it stimulates D_1 receptors in renal & mesentric blood vessels —> improves renal and mesentric perfusion.
o At moderately high doses it acts as 13, agonist --> positive ionotropic.
o At high doses it activates a-adrenoreceptors —> vasoconstriction.

522. All are alpha-blocker except?

a) Atenolol

b) Prazosin

c) Indoramine

d) Idazoxan

Correct Answer - A
Ans. is 'a' i.e., Atenolol

523. Which of the following potassium sparing diuretic alters cardiac mortality-

a) Spironolactone

b) Amiloride

c) Triamterene

d) Epleronone

Correct Answer - A
Ans. is 'a' i.e., Spironolactone
o Among potassium sparing diuretics, aldosterone antagonists (Spironolactone, eplerenone) reduce mortality in CHF.

524. Anti androgen used in heart failure ?

a) Carvedilol

b) Sampatrilat

c) Spironolactone

d) Abiraterone

Correct Answer - C
Ans. is 'c' i.e., Spironolactone
o Spironolactone and eplerenone are the aldosterone antagonists. They are used as potassium sparing diuretics. Their diurectic effect is quite feeble, but in CHF these drugs reduce the mortality (at doses lower than diuretic doses) by antagonizing the effect of aldosterone (reversal of remodelling). Spironolactone also possesses anti- androgenic effects.

525. Fosphenytoin different from phenytoin in which of the following-

a) Can be used in absence seizures

b) Can be mixed with saline

c) Can be given orally

d) It is the drug of choice for myoclonic seizures

Correct Answer - B
Ans. 'b' i.e., Can be mixed with saline

- While phenytoin cannot be injected in a drip of glucose solution, fosphenytoin can be injected with saline and glucose.

526. Iodine content in amiodarone -

a) 10 - 20%

b) 20 - 40%

c) 40 - 60%

d) 60 - 80%

Correct Answer - B
Ans. is 'b' i.e., 20 - 40%

527. Which of the following causes increased rennin on prolonged use ?

a) Clonidine

b) Enalapril

c) Methyldopa

d) Blocker

Correct Answer - B
Ans. is 'b i.e., Enalapril

528. Centrally acting antihypertensive drug is *?*

a) Phenoxybenzamine

b) Methy ldopa

c) Propanolol

d) Prazosin

Correct Answer - B
Ans. is 'b' i.e., Methyldopa
o Centrally acting sympatholytic antihypertensives are clonidine, *methyldopa,* guanabenz, guanfacine, moxonidine and rilmenidine.

529. True regarding Conivaptan is -

a) Vasopressin Antagonist

b) V2 selective action

c) Given orally

d) All

Correct Answer - A
Ans. is 'a' i.e., Vasopressin Antagonist

530. **Guanethidine is used in the treatment of which of the following condition?**

a) Thyrotoxic ophthalmopathy

b) Ptosis

c) Bell’s palsy

d) Horner’s syndrome

Correct Answer - A

Guanethidine (10%) eye drops is useful in decreasing lid retraction in Thyrotoxic ophthalmopathy. It is an adrenergic neuron blocker which acts by inhibiting the release of noradrenaline in response to nerve stimulation.

531. 5 HT 1 agonists used as ?(

a) Anti anxiety drugs

b) Antipsychotic drugs

c) GERD

d) Chemotherapy induced vomiting

Correct Answer - A
Ans. is 'a' i.e., Anti anxiety drugs
5-HT IA agonists (Buspiron, ipsapirone) act as antianxiety drugs.

532. Mechanism of action of theophylline in Bronchial asthma include all of the following Except ?

a) Phosphodiesterase inhibition

b) Adenosine receptor antagonism

c) Increased histone deacetylation

d) Beta-2 receptor stimulation

Correct Answer - D
Ans. is 'd' i.e., Beta-2 receptor stimulation
Proposed mechanisms of action of theophylline

- *Phosphodiesterase inhibition (Non selective)*
- *Adenosine receptor antagonism (A_1, A_2)*
- *Increased histone Deacetylase activity (↑red efficacy of corticosteroids)*
- *Inhibition of intracellular calcium release*
- *Stimulation of catecholamine release*
- *Inhibition of NF - alpha Beta translocation into the nucleus (nuclear translocation)*
- *Mediator inhibition (Prostaglandins, TNF* alpha)

533. **Omalizumab is used in treatment of:**

a) Breast carcinoma

b) Asthma

c) Rheumatoid arthritis

d) None of the above

Correct Answer - B

Omalizumab is a blocking antibody that neutralizes circulating IgE without binding to cell-bound IgE; it thus inhibits IgE-mediated reactions.

This treatment has been shown to reduce the number of exacerbations in patients with severe asthma and may **improve asthma control.** However, the treatment is very expensive and only suitable for highly selected patients who are not controlled on maximal doses of inhaler therapy and have a circulating IgE within a specified range.

Ref: Harrison's principle of internal medicine 17th edition, chapter 248.

534. Efficacy of salmeterol is increased if it is given along with -

a) Theophylline

b) Corticosteroid

c) Ipratropium

d) Sodium cromoglycate

Correct Answer - B
Ans. is 'b' i.e., Corticosteroid
o Concurrent use of inhaled salmeterol with inhaled glucocorticoid produces effects equivalent to double dose of the corticoid alone.

535. Which drug doesn't include DMARD:

a) Chloroquine

b) Vincristine

c) Azathioprine

d) Leflunomide

Correct Answer - B
Ans. is 'b' i.e., Vincristine
o *Disease modifying antirheumatic drugs (DMARDs)* :?
1. Immunosuppresants Methotrexate, azathioprine, cyclosporine
2. Sulfasalazine
3. Choloroquine or hydroxychloroquine
4. Leflunomide
5. Gold sod. thiomalate, Auranofin
6. d - Penicillamine

536. Which of the following drugs act directly without sexual stimulation ?

a) Sildenafil

b) Tadalafil

c) Alprostadil

d) Testosterone

Correct Answer - C
Ans. C. Alprostadil
Alprastadil (pGEl) is directly injected into corpora cavernusa for erectile dysfunction'
It acts by increasing arterial inflow'' by vasodilation and reducing outflow by contracting the carporal smooth muscle that occludes draining venules.

537. PGE_2 cause all except -

a) Water retention

b) Uterine contraction

c) Flushing

d) None

Correct Answer - A
Ans. is 'a' i.e., Water retention
o PGE_2 causes increase in water excretion by inhibiting ADH action.

538. Dinoprost is -

a) PG El

b) PGE2

c) PGF2 alpha

d) PGI2

Correct Answer - C
Ans. is 'c' i.e., PG F2 alpha
o Dinoprost - PG F2 alpha, intraamniotically for midterm abortion.
o Dinoprostone - PG E2, intravaginally for midterm abortion.

539. Which enzyme is irreversibly inhibited by aspirin?

a) Lipooxygenase

b) Cyclooxygenase

c) Thromboxane synthase

d) Phospholipase

Correct Answer - B
Ans. is 'b' i.e., Cyclooxygenase

540. In diabetes insipidus, diuretic showing paradoxical antiduretic activity -

a) Thiazide

b) Triamterene

c) Spironolactone

d) Furosemide

Correct Answer - A
Ans. is 'a' i.e., Thiazide

- Thiazide diuretics paradoxically decrease urine output in DI due to formation of cAMP in distal tubules effective in both central and nephrogenic DI.

541. Side effect of thiazide diuretics are all except ?

a) Hyponatremia

b) Hypokalemia

c) Erectile dysfunction

d) Hypocalcemia

Correct Answer - A
Ans. is 'A' i.e., Hypocalcemia
Thiazides cause hypercalcemia (see above explanation).

542. Desmopressin is preferred over vasopressin because desmopressin -

a) More potent

b) More selective for Vireceptor

c) Has little vasconstrictor activity

d) a and c

Correct Answer - D
Ans. is 'a' i.e., More potent; 'c' i.e., Has little vasconstrictor activity
o *Desmopressin is longer acting*
o *Desmopressin is* ***V_2 selective —)*** *No V, mediated vasoconstriction.*
o Desmopressin is 12 times more potent than vasopressin.

543. Which of the following is a selective serotonin & nor epinephrine reuptake inhibitor ?

a) Fluoxetine

b) Venlafaxine

c) Sertaline

d) Arnoxipine

Correct Answer - B
Ans. is 'b' i.e., Venlafaxine
o Important SNRIs are :- *Venalafaxine,* Milnacipram, *desvenalafaxine, Duloxetine.*

544. All are neural plate inducers except

a) Notochord appearance

b) High BMP

c) FGF upregulation

d) Prechordal mesoderm

Correct Answer - B
B i.e. High BMP

545. Toxic dose of lithium -

a) 0.6

b) 12

c) 2.6

d) <0.6

Correct Answer - C
Ans. is 'c' i.e., 2.6

546. Extrapyramidal syndrome like side effects are seen in -

a) Haloperidol

b) Clozapine

c) Tetracycline

d) Ketoconazole

Correct Answer - A
Ans. is 'a' i.e., Haloperidol
Drugs causing extrapyramidal effects
o *Butyrophenones (Haloperidol)* o *Methyldopa* o *OCP'S* o *Reserpine*
o *Levodopa* o *Metoclopromide* o *Phenothiazines* o *Tricyclic Antidepressants*

547. Trilene when used with Sodalime causes *?*

a) Renal damage

b) ARDS

c) Myocardial depression

d) Hepatitis

Correct Answer - B
Ans. is 'b' i.e., ARDS
o Following agents react with soda lime :
Sevoflurane is degraded by contact with CO_2 absorbant (soda lime) in anaesthesia machine, yielding a vinyl ether called Compound A which can cause renal damage.
Trilene produces phosgene (causing ARDS) and dicholoro acetylene (causes neurotoxicity) when used with sodalime.

548. Cardiotoxicity of bupivacaine -

a) Depressed pacemaker activity

b) Toxic compound damaging myocardial cells

c) Depressed neural control on heart

d) Vascular thrombosis and Myocardial ischemia

Correct Answer - A
Ans. is 'a' i.e., Depressed pacemaker activity
o Local anaesthetics block cardiac sodium channels and thus depress abnormal cardiac pacemaker activity, excitability, and conduction. At extremely high concentrations, local anaesthetics can also block calcium channels.

549. Short acting non delpolarizing blocker ?

a) Rocurorium

b) Suxamethonium

c) Mivacurium

d) Pancuronium

Correct Answer - C
Ans. is 'c' i.e., Mivacurium

550. Which is an intermediate acting insulin?

a) Insulin lispro

b) Regular insuin

c) NPH insulin

d) Insulin glargine

Correct Answer - C
Ans. is 'c' i.e., NPH insulin

551. Steroid ingested for long time leads to all of the following except -

a) Avascular necrosis of head of femur

b) Cataract

c) Glaucoma

d) Growth retardation

Correct Answer - C
Ans. is 'c' i.e., Glaucoma
Glaucoma occurs after *topical* therapy (not systemic)

552. Least glucocorticoid action is seen with ?

a) Fludrocortisone

b) Cortisone

c) Dexamethasone

d) Betamethasone

Correct Answer - B
Ans. is 'b' i.e., Cortisone
Least potent glucocorticoid —> Cortisone

553. Steroid with max mineralocorticoid activity ?

a) Fludrocortisone

b) DOCA

c) Prednisolone

d) Triamsinolone

Correct Answer - A
Ans. is 'a' i.e, Fludrocortisone

554. Intake of exogenous steroid causes:

a) Addison's disease

b) Cushing's syndrome

c) Pheochromocytoma

d) Conn's syndrome

Correct Answer - B
Answer is B (Cushing's syndrome):
The most common cause of Cushing's syndrome is iatragenic administration of steroids for a variety of reasons. - Harrison

555. Which of the following is a selective progesterone receptor modulator-

a) Onapristone

b) Ulipristal

c) Nomegestrol

d) Toremifene

Correct Answer - B
Ans. is 'b' i.e., Ulipristal
o Ulipristal is a SPRM approved for use as an Emergency Contraceptive.
o SPRM (selective progesterone receptor modulators) : Asoprisnil, ulipristal, onapristone, mifepristone.

556. Tibolone is a ?

a) Natural steroidal estrogen

b) Natural non-steroidal estrogen

c) Synthetic steroidal estrogen

d) Synthetic non-steroidal estrogen

Correct Answer - C
Ans. C. Synthetic steroidal estrogen
[Ref KDT 7Ve p. 306, 311]
Synthetic estrogens

- Steroidal → Ethinylestradiol, mestranol, tibolone.
- Nonsteroidal → Diethylstilbestrol, hexestrol, dienestrol.

557. **Finasteride is a:**

a) 5 alpha reductase inhibitor

b) PDE inhibitor

c) Alpha la blocker

d) Androgen receptor blocker

Correct Answer - A

Finasteride is a competitive inhibitor of the enzyme 5-alpha reductase which is responsible for the conversion of testosterone into a more active dihydrotestosterone responsible for the androgen action.

When used in benign prostatic hypertrophy, it reduces the prostate size and increased peak urinary flow rate.

It is also used in male pattern baldness and as a palliative treatment in prostatic carcinoma.

Ref: K D Tripathi Textbook of Pharmacology, 5th Edition, Page 272

558. Which of the following is a synthetic estrogen ?

a) Estrone

b) Estriol

c) Estradiol

d) Diethylstibestrol

Correct Answer - D
Ans. is 'd' i.e., Diethylstibestrol
Synthetic progesterones
1. Progesterone derivatives —> Medroxyprogesterone, Megestrol, Dydrogesterone, Hydroxyprogesterone, Nomegestrol.
2. 1 9-Nortestosterone derivatives —> Norethindrone, Lynesternol, Allylesterone, Levonorgestrel, Desogestrel, Norgestimate, Gestodene.
Synthetic estrogens
1. Steroidal ----> Ethinylestradiol, *mestranol,* tibolone.
2. Nonsteroidal ----> Diethylstilbestrol, hexestrol, dienestrol

559. Side effect of oxytocin is all except *?*

a) Placental abruption

b) Fetal distress

c) Peripheral vascular disease

d) Water intoxication

Correct Answer - C
Ans. is 'c' i.e., Peripheral vascular disease
o Side effects of Oxytocin are due to :
i) ADH like action - Water intoxication
ii) Excessive uterine contractions, prior to labour - Fetal distress, Placental abruption, Uterine rupture.

560. Which is not a S/E of Cimetidine ?

a) Impotence

b) Gynaecomastia

c) Atrophic gastritis

d) Galactorrhea

Correct Answer - C
Ans. is 'c' i.e., Atrophic gastritis

561. Antilipidemic drugs that prevent hypercholesterolemia by inhibiting absorption -

a) Ezetimibe

b) Orlistat

c) Cholestyramine

d) Statins

Correct Answer - A
Ans. is 'a' i.e., Ezetimibe
Ezetimibe inhibits the absorption of cholesterol by bidning to transporter [NPC-1L1 (Niemann Pick Cl, likel) SRBl, 145 KDa] located in intestinal brush border.
Note:
Orlistat also reduces cholesterol absorption, but it is an anti-obesity drug (not an antilipidemic drug).

562. Antifungal which can be used orally but not iv is?

a) Voriconazole

b) Amphoterecin B

c) Terbinafine

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Terbinafine

563. Most potent statin -

a) Simvastatin

b) Pravastatin

c) Rosuvastatin

d) Simvastatin

Correct Answer - C
Ans. is 'c' i.e., Rosuvastatin
o Two most potent statins are
Pitavastatin (most potent) and *rosuvastatin most potent).*

564. An 86 years old lady presented with severe constipation. She was a known hypertensive on medications for 10 years. In clinic, her BP was 157/98 mm Hg with a heart rate of 58/min. On taking here BP in the supine position it was found to be 90/60 mm Hg. She had the recent history of depression. She is taking atenolol, thiazide, imipramine, haloperidol and docusate. What will be the next best step in the management?

a) Change atenolol and thiazide to calcium channel blocker and ACE inhibitor and add bisacodyl for constipation

b) Change imipramine and haloperidol to fluoxetine and risperidone and add bisacodyl for constipation

c) Only add bisacodyl for constipation and continue rest of the medications

d) Discontinue all her medications and start her on steroids

Correct Answer - B

Ans: B. Change imipramine and haloperidol to fluoxetine and risperidone and add bisacodyl for constipation

*(*Ref Harrison 19/e p1623-1624, 18/e p3531: Goodman Gilman 12/e p410. 1333)

Effects of Imipramine:

- Postural hypotension - Due to alpha blockade by Imipramine & thiazides interaction.
- Anti-cholinergic side-effect.
  - Hence, Imipramine (TCA) must be discontinued.
  - Should be started on SSRI, fluoxetin & laxative (existing constipation).

Effect of haloperidol:

- Anti-cholinergic side effects.
- Should start on atypical antipsychotic Risperidone.

565. Prophylactic dose of vitamin K given to new born infants at delivery is ?

a) 1mg

b) 5mg

c) 10mg

d) 15mg

Correct Answer - A
Ans. is 'a' i.e., 1 mg
***Vitamin* K Deficiency in Newborns**

- The symptoms of vitamin K deficiency are due to hemorrhage
- Newborns are particularly susceptible to vitamin K deficiency because of low fat stores, low breast milk levels of vitamin K, sterility of the infantile intestinal tract, liver immaturity, and poor placental transport.
- Intracranial bleeding, as well as gastrointestinal and skin bleeding, can occur in vitamin K-deficient infants 17 days after birth.
- Thus, vitamin K (1 mg IM) is given prophylactically at the time of delivery.

566. Low molecular weight heparin mainly inhibits which factor:
September 2009

a) Factor Ilia

b) Factor VIIIa

c) Factor Xa

d) Factor XIIa

Correct Answer - C
Ans. C: Factor Xa

567. All of the following have interaction with warfarin except-

a) Barbiturate

b) Oral contraceptive

c) Cephalosporins

d) Benzodiazepens

Correct Answer - D
Ans. is 'd' i.e., Benzodiazepenes

568. Clopidogrel mechanism of action -

a) Thromboxane A2 inhibition

b) Inhibit ADP mediated cAMP activation

c) GP II_b/In_a inhibitors

d) None

Correct Answer - B
Ans. is 'b' i.e., Inhibit ADP mediated cAMP activation

569. **Romiplostim acts on which of the following receptors:**

a) Thrombopoeitin

b) IL 6

c) IL 8

d) PGE 1

Correct Answer - A

Romiplostim: Genetically engineered protein in which the Fc component of a human antibody is fused to two copies of a peptide that stimulates the thrombopoietin receptors; approved for treatment of idiopathic thrombocytopenic purpura

Ref: Katzung 11th edition Chapter 33.

570. Mechanism of action of quinolones is?

a) DNA gyrase inhibitors

b) Bind to 30 s unit

c) Bind to bacterial cell membrane

d) Bind to tetrahydofolate reductase

Correct Answer - D
DNA gyrase inhibitors REF: Goodman Gillman's 11th ed p. 722
The quinolone antibiotics target bacterial DNA gyrase and topoisomerase IV. For many gram positive bacteria, topoisomerase IV is the primary target. For many gram-negative bacteria, DNA gyrase is the primary quinolone target.

571. Drug inhibiting bacterial protein synthesis are all except-

a) Aminoglycosides

b) Chloramphenicol

c) Clindamycin

d) Sulfonamides

Correct Answer - D
Ans. is `d' i.e., Sulfonamides
o Sulfonamides affect intermediary metabolism by inhibiting folate synthase.

572. Longest acting sulphonamide is -

a) Sulfadiazine

b) Sulphadoxine

c) Sulfamethoxazole

d) Sulfamethiazole

Correct Answer - B
Ans. is 'b' i.e., Sulfadoxine
Sulfadoxine and sulfamethopyrazine are long acting sulfonamides.

573. Widest spectrum aminoglycoside is -

a) Streptomycin

b) Amikacin

c) Framycetin

d) Netilmicin

Correct Answer - B
Ans. is 'b' i.e., Amikacin

574. **Dose of oseltamivir in a child aged 9 months is:**

a) 2mg/ kg twice daily for 5 days

b) 2.5 mg/ kg twice daily for 5 days

c) 3 mg/ kg twice daily for 5 days

d) 3.5 mg/ kg twice daily for 5 days

Correct Answer - C

Age groups	Recommended dose of oseltamivir
0 to 1 month	2mg/ kg twice daily for 5 days
>1 month to 3 months	2.5mg/ kg twice daily for 5 days
>3 months to 12 months	3mg/ kg twice daily for 5 days

Ref: Park 21st edition, page 148
Chapter: Epidemiology in communicable diseases.

575. Indication of Acyclovir in pregnancy :

a) Disseminated herpes

b) Chicken-pox in first trimester

c) Prophylaxis in recurrent herpes

d) All of the above

Correct Answer - D
All of the above

576. Which of the following antimalarial is a slow acting schizonticide-

a) Artemether

b) Mefloquine

c) Pyrimethamine

d) Quinine

Correct Answer - C
Ans. is 'c' i.e., Pyrimethamine
o Antimalarials that act on erythrocytic phase of schizogony are called erythrocytic schizontocides. The available drugs can be divided into ?
1. Fast acting - Chloroquine, amodiaquine, *quinine, mefloquine,* halofantrine, lumefantrine, atovaquone, *artemisinin.*
2. Slow acting - *Pyrimethamine,* Proguanil, sulfonamides, tetracyclines.

577. Red man syndrome is due to -

a) Vancomycin

b) Polymyxin

c) Rifampicin

d) Teicoplanin

Correct Answer - A
Ans. is 'a' i.e., Vancomycin
Vancomycin can cause red men syndrome.

578. Bleeding is seen with the use of -

a) Cefaloridine

b) Cefazolin

c) Moxalactum

d) Ceftazidime

Correct Answer - C
Ans. is 'c' i.e., Moxalactam
o Ceftriaxone, cefoperazone, moxalactam & cefamandole can cause *hypoprothrmbinemia* and bleeding.

579. Sulphonamide injection causes decrease in folic acid by?

a) Competitive inhibition

b) Non competitive inhibition

c) Uncompetitive inhibition

d) Allosteric inhibition

Correct Answer - A
Ans. is 'a' i.e., Competitive inhibition
Bacteria synthesize their own folic acid of which para aminobenzoic acid (PABA) is a constituent - *Sulfonamides, being structural analogues of PABA,* inhibit bacterial folate synthase *competitively.*

580. All are true about ciprofloxacin except *?*

a) C/I in pregnancy

b) DNA inhibition

c) Most potent 1st generation fluoroquinolone

d) More active at acidic pH

Correct Answer - D
Ans. is 'd' i.e., More active at acidic pH
Ciprofloxacin is the most potent first generation FQ.
o Ciprofloxacin inhibit DNA gyrase and is contraindicated in pregnancy.
It is less active at acidic pH.

581. Which of the following is not used as treatment for lymphatic filariasis -

a) Ivermectin

b) DEC

c) Praziquantel

d) Albendazole

Correct Answer - C
Ans. is 'c' i.e., Praziquantel
o Drugs used in lymphatic filiriasis are ***DEC,*** *ivermectin, albendazale* and doxycycline.

582. About vinca alkaloids true is *?*

a) Inhibits mitotic spindle

b) Enhances polymerization of tubulin

c) Inhibits topoisomerase I

d) Inhibits topoisomerase II

Correct Answer - A
Ans. is 'a' i.e., Inhibits mitotic spindle
Vinca alkaloids (vincristine) inhibit mitotic spindles by preventing polymerization of tubulin

583. Which of the following Anti neoplastic drugs SHOULD NOT be given by rapid IV infusion?

a) Cyclophosphamide

b) Cisplatin

c) Bleomycin

d) Cytosine arabinoside

Correct Answer - B
Ans. is `b ' i.e., Cisplatin
o Cisplatin is the most common culprit causing chemotherapy induced nausea and vomiting, therefore cisplatin is given as slow i.v. infusion(never bolus) to prevent vomiting.

584. Mode of action of azathioprine ?

a) ↑ IL-2

b) T-cell blockade

c) Decreased lymphophagocytic activity

d) Wide-spread antitumor activity

Correct Answer - B
Ans. is 'b' i.e., T-cell blockade

585. Resistance to Methotrexate develops due to?

a) Rapid Cancer cell multiplication

b) Deficiency of thymidylate kinase

c) Deficiency of thymidylate synthetase

d) Increased production of dihydrofolate reductase

Correct Answer - D
Ans. is 'd' i.e., Increased production of dihydrofolate reductase
Methotrexate resistance
o Methotrexate resistance may be due to any of the following mechanism *:?*
i) Defective transport into cells
ii) Production of altered form of DHFR that have decreased affinity for methotrexate
iii) Increased concentrations of intracellular DHFR through gene amplification or altered gene regulation
iv) Decreased ability to synthesize methotrexate polyglutamates
v) Increased expression of a drug efflux transporter, of the MRP (multidrug resistance protein) class

586. Which of the following poisoning presents with abdominal pain, diarrhea, Mees line on nails and myelosuppression: *September 2011*

a) Lead

b) Arsenic

c) Alcohol

d) Mercury

Correct Answer - B
Ans. B: Arsenic
In chronic arsenic poisoning, a classical state of ill health results are represented by 4 stages. First stage of nutritional and gastrointestinal disturbances (diarrhoea is common)
Third stage (of skin rashes) shows white bands known as Mees line crossing the nail of fingers and toes
In addition to this, there may be evidence of liver damage, kidney damage and bone marrow depression at some stage Arsenic poisoning

- Increased levels of the element arsenic in the body.
- Arsenic interferes with cellular longevity by allosteric inhibition of an essential metabolic enzyme.
- Symptoms of arsenic poisoning include headache, confusion, convulsion, diarrhea, vomiting, and in severe case coma and death
- Routes of exposure include contaminated water, air, and food.
- Occupational exposure to arsenic may occur with copper or lead

smelting and wood treatment and among workers involved in the production or application of pesticides

- Symptoms of arsenic poisoning begin with headaches, confusion, severe diarrhea, and drowsiness.
- As the poisoning develops, convulsions and changes in fingernail pigmentation called leukonychia may occur.
- When the poisoning becomes acute, symptoms may include diarrhea, vomiting, blood in the urine, cramping muscles, hair loss, stomach pain, and more convulsions.
- The organs of the body that are usually affected by arsenic poisoning are the lungs, skin, kidneys, and liver.
- Chronic arsenic exposure can remain in the body systems for a longer period of time than a shorter term or more isolated exposure and can be detected in a longer time frame after the introduction of the arsenic, important in trying to determine the source of the exposure.
- Hair is a potential bioindicator for arsenic exposure due to its ability to store trace elements from blood.
- Incorporated elements maintain their position during growth of hair.
- Thus for a temporal estimation of exposure, an assay of hair composition needs to be carried out with a single hair which is not possible with older techniques requiring homogenization and dissolution of several strands of hair.
- This type of biomonitoring has been achieved with newer microanalytical techniques like Synchroton radiation based X ray fluorescence (SXRF) spectroscopy and Microparticle induced X ray emission (PIXE).
- Dimercaprol and dimercaptosuccinic acid are chelating agents which sequester the arsenic away from blood proteins and are used in treating acute arsenic poisoning.
- The most important side effect is hypertension.
- Dimercaprol is considerably more toxic than succimer

587. All are true regarding Sunitinib except -

a) It inhibits tyrosine kinase receptors

b) It is used for renal cell carcinoma

c) It is used for the treatment of GIST

d) It is excreted primarily in urine

Correct Answer - D
Ans. is 'd' i.e., It is excreted primarily in urine

- Sunitinib inhibits multiple Tyrosine kinase receptors. **It** inhibits PDGF, VEGF and c-kit.
  o *Sunitinib* and *sorafinib* are used in renal cell carcinoma (in RCC there is overexpression of VEGF) and GIST (in GIST there is over expression of C-Kit & PDGF).
  o It is eliminated primarily by hepatic route with excretion in faeces.

588. Which of the following drug causes hirsutism?

a) Phenytoin

b) Valproate

c) Carbamazepine

d) Phenobarbitone

Correct Answer - A
Ans. is 'a' i.e., Phenytoin

589. Not a selective serotonin reuptake inhibitor

a) Fluoxitine

b) Fluoxamine

c) Buspirone

d) Citaloforamin

Correct Answer - C
Buspirone

590. Which of the following drug crosses BBB?

a) Glycopyrrolate

b) Neostigmine

c) Physostigmine

d) All of the above

Correct Answer - C
Ans. C. Physostigmine
[Ref KDT p. 07, 117]

- Physostigmine - Rapidly absorbed from GIT and parenteral sites, penetrates cornea freely and crosses BBB (blood brain barrier).
- Neostigmine - It is a quarternary ammonium compound which is poorly absorbed orally with poor corneal penetration and doesn't cross BBB.
- Glycopyrrolate - It is a potent and rapidly acting anti - muscarinic lacking central effects and is used as a pre-anaesthetic medication.

591. Juvenile justice act defines a juvenile which is

a) Male below 16 years

b) Female below 16 years

c) Male below 18 years

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Male below 18 years

592. CrPC 26 ?

a) Division of offence

b) Division of negligence

c) Division of malpractice

d) None

Correct Answer - A
Ans. is 'a' i.e.,Division of offence
According to Sec 26 of CrPC, 1973, Offences under the Criminal Procedure Code (hereinafter the "CrPC") are divided into:
1. Offences under Indian Penal Code (IPC) (triable by HC, Sessions Court and other court shown in the 1st Schedule to the CrPC)
2. Offences under any other law (empowers HC, when no court is mentioned for any offence under any law other than IPC, to try such offences)

593.

Which section belongs to marital rape ?

a) 375A

b) 376A

c) 376B

d) 375B

Correct Answer - B
Ans. is 'b' i.e., 376A [Ref Reddy 30"Ve p. 377] Marital rape
It is forceful sexual intercourse with wife who is living separately from him under a decree of separation, or any custom or usage without her consent.
It is punishable with imprisonment up to 2 years provided the age of wife is not below 12 years- Section 376 A, I.P.C.

594. Police inquest is required in all except:

b) Accidental death

c) Dowry death

d) Murder

Correct Answer - C
Ans. C: Dowry death
In police inquest, sub-inspector or officer in charge of the police station conducts the inquest in suicide, murder, accidental deaths or death under suspicious circumstances.
Magistrate inquest is done in:

- Custodial death
- Death due to police firing
- Death in prison
- Death in a psychiatric hospital
- Dowry deaths
- Exhumation

In dowry deaths, inquest should be carried out by a magistrate or police officer, not below the rank of deputy superintendent of police.

595. Plantiff is a person who ?

a) Files case in civil court

b) Acts as defender

c) Gives judgement

d) None

Correct Answer - A
Ans. is 'a' i.e., Files case in civil court [Ref Internet]
Plaintiff is a person who files a case in civil court. ·

596. In criminal cases, conduct money is paid by:
NEET 13

a) Court

b) Opposite party

c) Judge

d) No conduct money is given

Correct Answer - D
Ans. No conduct money is given

597. Oral evidence is more important than written testimony as:
NEET 13

a) Oral evidence cannot be cross-examined

b) Oral evidence can be cross-examined

c) Documentary evidence requires no proof

d) None

Correct Answer - B
Ans. Oral evidence can be cross-examined

598. Contributory negligence is negligence due to:
NEET 13

a) Doctor only

b) Patient only

c) Both doctor and patient

d) Hospital administrator and doctor

Correct Answer - C
Ans. Both doctor and patient

599. In a 3 month fetus, characteristic feature seen is:
NEET 13

a) Nails are visible

b) Limbs well formed

c) Anus is seen as dark spot

d) Meconium is found in duodenum

Correct Answer - A
Ans. Nails are visible

600. Rule of Hasse is used to determine :

a) The age of fetus

b) Height of an adult

c) Race of a person

d) Identification

Correct Answer - A
Ans. is a i.e. The age of fetus
Hasse's rule is employed in calculating the age of fetus by its length

- During the first five months of pregnancy, the length in cms is square of the age in months i.e. Length in cms = (Age in months)?
  Age in **months =** Qlength in cms
- During second five months of pregnancy, length in cms divided by 5 is the age in months. Length in ems
  Age in months 5

601. Crural index is:

a) Length of tibia/femur x 100

b) Length of radius/humerus x 100

c) Length of fibula/tibia x 100

d) Length of radius/ulna x 100

Correct Answer - A
Ans. Length of tibia/femur x 100

602. Which of the following is not seen in finger prints ?

a) Loop

b) Circles

c) Whorl

d) Arch

Correct Answer - B

Ans. is 'b' i.e., Circles [Ref Reddy 30`h/e p. 75-76]

Classification of finger prints:

- Loops (60-70%)- radial, ulnar
- Whorls (25-35%)- concentric, spiral, double spiral, almond shaped
- Arches (6-7%)- plain, tented, exceptional
- Composite (1-2%)- central pocket loops, lateral pocket loops, twinned loops, accidentals
- Most common type - Loops.
- Least common type -› Composite.

603. Method of identification using lips:

a) Dactylography

b) Poroscopy

c) Cheiloscopy

d) Tricology

Correct Answer - C
Ans. Cheiloscopy

604. What is first external sign of decomposition of dead body -

a) Decomposition of liver and intestine

b) Greenish discolouration over right iliac fossa

c) Greenish discolouration over dependent parts

d) Blood stained froth from mouth

Correct Answer - B

Ans. is 'b' i.e., Greenish discolouration over right iliac fossa [Ref Reddy 30th/e p. 150-152]

First external sign of putrefaction - Green discoloration in right iliac fossa.

First internal sign of putrefaction Green discoloration under liver.

These are due to involvement of caecum which contains more gas and is full of bacteria.

605. In vitrous what is measured for time since death -

a) Sodium

b) Potassium

c) Proteins

d) Chloride

Correct Answer - B

Ans. is 'b' i.e., Potassium [Ref: Reddy 30th/e p. 139]

Post mortem changes in eye are :

- Loss of corneal reflex
- Opacity of cornea- cornea becomes opaque in 2 to 4 hours.
- Flaccidity of eye ball- within minutes after death due to decreased intraocular tension.
- Pupils are dilated within one minute of death, pupils react to atropine for about one hour.
- Retina- fragmentation of blood column in retinal vessels occur within minutes to one hour.
- Chemical change- a steady rise in the potassium values occur in the virtous humor after death upto 100 times.

606. Postmortem caloricity is seen in all, *except:*
AP 06; Bihar 12; BHU 12

a) Burns

b) Sunstroke

c) Tetanus

d) Septicemia

Correct Answer - A
Ans. Burns

607. Color of postmortem lividity in hypothermic deaths:
NEET 13

a) Purple

b) Deep red

c) Cherry red

d) Bright pink

Correct Answer - D
Ans. Bright pink

608. In how many hours does a dead body float in India in summer ?

a) 6 hours

b) 12 hours

c) 24 hours

d) 48 hours

Correct Answer - C

Ans. is 'c' i.e., 24 hours

Time of floatation of dead body in drowining is ordinarily 24 hours after death in summer and 2 to 3 days in cold season.

.. The body floats quicker in summer due to early putrefaction)

2. It floats up sooner in shallow or saline water because of its higher specific gravity)

3. Floatation is quicker in polluted water due to quicker decomposition)

4. Bodies of women and fatty persons float earlier as they are highter. Bodies of the children float up earlier as bones are lighter.

609. Foamy liver is seen in:
TN 08; UP 08; NIMS 11; NEET 13

a) Arsenic poisoning

b) Electrocution

c) Hanging

d) Putrefaction

Correct Answer - D
Ans. Putrefaction

610. In medicolegal autopsy, cavity to be opened first is ?

a) Thoracic

b) Abdomen

c) Cervical

d) Any of the above

Correct Answer - D

Ans. is 'd' i.e., Any of the above [Ref Reddy 30th le p. 97]

Depending on type of case, any of the body cavity can be opened first. Spinal cord is routinely not opened.

It is convenient to start the examination with the cavity chiefly affected

611. Incised looking laceration is seen at ?

a) Forehead

b) Hand

c) Thorax

d) Abdomen

Correct Answer - A

Ans. is 'a' i.e., Forehead

LACERATIONS (Tear or Rupture)

Lacerations are tears or splits of skin, mucous membrane and underlying tissue (e.g., muscle or internal organs). Lacerations are produced by application of blunt force to broad area of the body, *which crush or stretch tissues* beyond the limits of their elasticity. Localized portions of tissue are displaced by the impact of the blunt force, which sets up traction forces and causes tearing of tissues.

Features of lacerations are :?

i) Hair and hair bulb, nerves and blood vessels are crushed → There may be paralysis (nerve crushed) and *hemorrhage is not pronounced (blood vessels crushed).*

ii) Site of injury is the site of impact.

iii) Shape of injury is irregular, margins are irregular and contused/abraded and show tags of tissue.

iv) Size of injury does not corresponds to impacting surface.

There are following types of laceration : ?

1) Split laceration : Splitting occurs by crushing of skin between two hard objects. Blunt force on areas where the skin is close to rigid structures like bone with scanty subcutaneous tissue, may produce a wound that by linear splitting of tissue may look like incised wound, i.e., incised like or incised looking wound. Examples of such area

are scalp, eye brows, cheek bones (zygomatic), lower jaw, iliac crest, perineum and skin. A wound produced by a fall on *knee or elbow* with limb flexed and by a sharp stone also simulates incised wound.

2) Strech lacerations : Overstretching of the skin, if it is fixed, will cause laceration, for example, by kicking, sudden deformity of bone occurs after fracture, making it compound.

3) Avulsion (shearing laceration) : An avulsion is a laceration produced by sufficient force (shearing force) delivered at an acute angle to detach (tear off) a portion of a traumatized surface or viscus from its attachment, the shearing and grinding force by a weight. Flaying *is* type of avulsion in which shearing and grinding force by weight (such as of lorry wheel passing over a limb) may produce avulsion (separation of skin from underlying tissue/degloving of a large area).

4) ears : Tears of the skin and tissues can occur from imact by a against irregular or semi-sharp objects, such as door handle of a car. This is another form of overstretching.

5) Cut laceration : Cut lacerations may be produced by a heavy sharp edged instrument.

612. Incised looking laceration is seen in all, *except*
AFMC 11; NEET 13

a) Iliac crest

b) Zygomatic bone

c) Shin

d) Chest

Correct Answer - D
Ans. Chest

613. Blackening of eye most common because of:
NEET 13

a) Friction abrasion

b) Patterned abrasion

c) Imprint abrasion

d) Contusion

Correct Answer - D
Ans. Contusion

614. Ectopic bruise is most commonly seen in:
NEET 13

a) Leg

b) Eye

c) Pinna

d) Scalp

Correct Answer - B
Ans. Eye

615. In a case of hanging neck ligature marks are example of

a) Contussion

b) Printed abrasion

c) Laceration

d) Bruise

Correct Answer - B
B i.e. Printed abrasion

616. True about Stab Wounds ?

a) Depth is greater than Breadth

b) Breadth is greater than depth

c) Length is greater than breadth

d) It has wound of entry and exit

Correct Answer - A

Ans. is 'a' i.e., Depth is greater than breadth [Ref Reddy 30th Ie p. 179]

Stab/ puncture wound is an injury caused by pointed weapons such as dagger, knife, needle, arrow, scissor and its depth is the greatest dimension.

617. Marshalls triad is seen in ?

a) Explosive injury

b) Gunshot injury

c) Drowning injury

d) None

Correct Answer - A
Ans. is 'a' i.e., Explosive injury [Ref
epository.up.ac.za/bitstream/handle/2263/19400/Blumenthal_Does(
Marshall's triad includes punctate-bruises, abrasions and small punctate lacerations all of which are typically found in an explosive bomb blast.

618. Kennedy phenomenon is seen in:
NEET 13

a) Road traffic accident

b) Gunshot injury

c) Burns

d) Contusion

Correct Answer - B
Ans. Gunshot injury

619. Gunshot residue on hands can be detected by:
DNB 10; NEET 13

a) Phenolphthalein test

b) Dermal nitrate test

c) Benzidine test

d) H_2 activation test

Correct Answer - B
Ans. Dermal nitrate test

620. Shotgun does not contain use:

NEET 13

a) Barrel

b) Choke bore

c) Bullets

d) Muzzle

Correct Answer - C
Ans. Bullets

621. Dirt collar or grease collar is seen in:

NEET 13

a) Punctured wound by sharp weapon

b) Lacerated wound

c) Firearm entry wound

d) Stab wound

e) None

Correct Answer - C

Ans. Firearm entry wound

Smudge ring/Lead ring/Grease collar/Dirt collar

- This is due to the wipe of the soft metal of the bullet, or dirt present on it, or grease carried from the barrel & is deposited round the entrance wound internal to the abraded collar
- The smudge ring may therefore be absent when the jacketed bullet has passed through clothing
- The smudging in case of lead shot or unjacketed bullets can be detected microchemically on the target (skin/cloth)
- The forensic value of bullet wipe is to establish a hole as a bullet hole, to determine the entry site, & on occasion the sequence of shots or bullet's passage through multiple objects.

622. La facies symapthique is seen in ?

a) Hanging

b) Strangulation

c) Myocardial insufficiency

d) Railway accident

Correct Answer - A

Ans. is 'a' i.e., Hanging [Ref Reddy 30th/e p. 526]

La facies symapthique: eye on the side of the knot in hanging remains open, due to overstretching of cervical sympathetic chain of the neck on this side.

It occurs in hanging due to pressure of ligature knot on the cervical sympathetic chain.

623. Burking includes:

NEET 13

a) Choking

b) Ligature

c) Overlaying

d) Traumatic asphyxia

Correct Answer - D
Ans. Traumatic asphyxia

624. Hyoid bone fracture most common occurs in ?

a) Manual strangulation

b) Hanging

c) Smothering

d) Traumatic asphyxia

Correct Answer - A
Ans. is 'a' i.e., Manual strangulation
As manual strangulation (throttling) is among the most violent form of asphyxia, hyoid fracture and other injury to neck structures is more common.

625. Victim was choked with mouth & nose covered with elbow around neck. It is called as ?

a) Mugging

b) Garrotting

c) Bansadola

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Mugging [Ref Reddy 30th/e p. 321]

Mugging: Strangulation is caused by holding the neck of the victim in the bend of the elbow.

Garrotting: The victim is attacked from behind. The throat may be grasped or a ligature is thrown over the neck & quickly tightened, by twisting it with a lever, which results in sudden loss in consciousness and collapse.

Bansdola: one strong bamboo or stick is placed across the back of the neck & another across the front. Both the ends are tied with a rope due to which the victim is squeezed to death

626. Cause of death for drowning in cold water:
NEET 13

a) Vagal inhibition

b) Asphyxia

c) Loss of consciousness

d) Ventricular fibrillation

Correct Answer - A
Ans. Vagal inhibition

627. In sexual assault of a child, the hymen is usually not ruptured due to:
NEET 13

a) Deep seated

b) Underdeveloped

c) Too tough to rupture

d) Distensible

Correct Answer - A
Ans. Deep seated

628. Most common hymen rupture in a virgin is ?

a) Anterior

b) Anterolateral

c) Posterolateral

d) Posterior

Correct Answer - C
Ans. is 'c' i.e., Posterolateral
Hymen rupture:

- Congenital : anterior
- Due to intercourse or foreign body: posterolateral (4/8 or 5/7 0' clock) > posterior (6 0' clock).
- In virgin rupture (tears) of hymen due to sudden tretching occurs in posterior half of membrane usually at the sides (i.e. posterolaterally) in 4 or 8'O clock or 5 or 7'O clock position, or in the midline of hymen (6'O clock position).
- With first intercourse tears usually occur in posterior midline because the hymen lies suspended across a potential space here, whereas anteriorly periurethral tissues buttress the hymen.
- More than 2 tears are unusual, Semilunar hymen often ruptures on both sides. Annular hymen which nearly closes up the vaginal orifice may suffer several hymenal lacerations indicate first sexual intercourse.
- One deep 'V shaped cleft/tear at 6' 0 clock or a number of clefts usually in posterior haft hymen membrane indicate passage of any object through hyme orifice which is larger its original opening.'
- In prepubertal children posterior tear may involve fourchette producing a deep U shaped defect. Fourchette is torn, fossa

navicularis disappear and posterior commissure may be ruptured. The latter injury usually does not occur in consenting sexual intercourse unless there is much disproportion between the male and female parts.

629. Frotteruism is ?

a) Sexual pleasure is obtained by witnessing the act of urination

b) Sexual gratification by rubbing private parts

c) Sexual practise involving three people

d) None

Correct Answer - B

Ans. is 'b' i.e., Sexual gratification by rubbing private parts [Ref Reddy 30thie p. 395]

Frotteurism : is contact with another person in order to obtain sexual gratification. Sexual gratification by rubbing private parts against a female body in crowd. It is punishable under Section 290 I.P. C., with fine upto Rs 200.

630. Disputed maternity can be solved by using the following tests, EXCEPT:

a) Blood grouping

b) HLA typing

c) Preciptin test

d) DNA fingerprinting

Correct Answer - C
Precipitin test is an antigen-antibody reaction test, used to distinguish between species.
It uses species specific antiserum.
It will not be used for disputed maternity.

Ref: Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology By Parikh, 6th Edition, Pages 7-21 ; The Essentials of Forensic Medicine and Toxicology By K S Narayan Reddy, 27th Edition, Pages 402

631. Gastric lavage is contraindicated in which of the following: September 2010

a) Arsenic poisoning

b) Kerosene poisoning

c) Organophosphorus Poisoning

d) Dhatura poisoning

Correct Answer - B
Ans. B: Kerosene Poisoning
Lavage is contraindicated when patients have a compromised, unprotected airway and in patients at risk of gastrointestinal hemorrhage or perforation.
Relative contraindications include when the poisoning is due to a corrosive substance, hydrocarbons, or for poisons that have an effective antidote.

632. What acts as both poison & antidote ?

a) $CuSO_4$

b) HgC12

c) Ar_20_3

d) Thallium arsenate

Correct Answer - A

Ans. is 'a' i.e., $CuSO_4$ ***[Ref: Reddy 30th/e p. 500, 503]***

Copper sulphate acts as a poison & an antidote for phosphorus poisoning.

Copper sulphate when ingested causes burning pain in stomach with colicky abdominal pain, vomiting. In severe cases, hemolysis, hemoglobinuria, methemoglobinemia, jaundice, pancreatitis & cramps & convulsions. Death can occur due to hepatic & renal failure.

It is given in gastric lavage for phosphorous poisoning as it coats the particles of phosphorous with a film of copper sulphide which is harmless.

633. First aid should be given in acid contact ?

a) Wash with normal water soap

b) Wash with mild alkali agent

c) Wash with strong alkali

d) Refer to higher centre

Correct Answer - B

Ans. is 'b' i.e., Wash with mild alkali agent *[Ref Reddy 30Th Ie p. 485]*

The most critical aspect of acid burn care is the constant and prolonged washing of the area with water at a room temperature to get the acid out immediately.

To try and minimize the damage, the effects of acid should be neutralized by applying a mild alkali solution to the affected area (solution of sodium bicarbonate and water.

634. Amotivational syndrome is seen with:
***Maharashtra 10; NEET* 13**

a) Heroin

b) Cannabis

c) Cocaine

d) Clonidine

Correct Answer - B
Ans. Cannabis

635. Cyanide odour is of ?

a) Rotten egg

b) Fish

c) Fruity

d) Bitter almond

Correct Answer - D

Ans. is 'd' i.e., Bitter almond *[Ref Reddy 30th/e p. 578]*

Odors associated with poisoning

- Garlik like : Phosphorus, arsenic, zinc phosphide, aluminium phosphide (celphos), arsine gas, tellurium, parathion, malathion, arsenic.
- Rotten eggs : Hydrogen sulphide, mercaptans, disulphiram.
- Fishy or musty : Zinc phosphide.
- Bitter almonds : Cyanide, HCN.
- Acrid : Paraldehyde, chloral hydrate.
- Burnt rope : Cannabis.
- Kerosene like : Kerosene and organophosphates.
- Phenolic smell : Carbolic acid.

636. In strychnos nux vomica poisoning, patient:
NEET 13

a) Becomes unconscious immediately

b) Becomes unconscious in 1 h or so

c) Becomes unconscious at end stage

d) Remains conscious throughout

Correct Answer - D
Ans. Remains conscious throughout

637. In nux vomica poisoning, posture commonly assumed by the spine is: ***NEET 13***

a) Opisthotonus

b) Emprosthotonus

c) Pleurosthotonus

d) B and C

Correct Answer - A
Ans. Opisthotonus

638. Phossy jaw is caused by ?

a) White phosphorus

b) Red Phosphorus

c) Arsenic

d) Antimony

Correct Answer - A

Ans. is 'a' i.e., White Phosphorus

Phossy jaw is caused by phosphorus poisoning. All phosphorus poisoning are caused by white (yellow) phosphorus (Red phosphorus is nontoxic).

Phosphorus poisoning

- Phosphorus is a protoplasmic poison affecting cellular oxidation and causing anoxic necorbiosis, classically affecting liver. It increases fat deposition and inhibits glycogen deposition in liver. It is used in fire works *(Diwali poisoning)* and as rat poison. Lethal dose is 60-120 mg.

Phosphorus occurs in two forms :?

1) White/yellow phosphorus : It is white, and becomes yellow on exposure to air. It is translucent, waxy, luminous and crystalline cylinders. It has garlic like odor. It is insoluble in water and luminous in dark. Its fumes show phosphorescence.

2) Red phosphorus : It is reddish brown, inert, odourless and tasteless. It is nontoxic (thus poisoning occurs only due to white phosphorus). It is put on the sides (striking surface) of match box (along with powdered galss).

Acute poisoning

It has following stages :

i) 1st Stage (GI irritation) : There is nausea, vomiting, diarrhea and garlic odor. This stage lasts for 8 hours to 2 days

garlic odor. This stage lasts for 8 hours to 3 days.
ii) 2nd Stage (Asymptomatic) : This stage lasts for 3 days.
iii) 3rd Stage : There is *liver and kidney damage* due to absorbed phosphorus. Initially liver is enlarged due to acute fatty infiltration. Later liver shruks due to necrosis, i.e. *acute yellow atrophy.*

Chronic poisoning

- Toothache is the first symptom which is associated with loosening of teeth, necrosis of gums and osteomyelitis of jaw. Therefore chronic phosphorus poisoning is also know as phossy jaw (or glass jaw).

Postmortem appearance

- There is garlic odor. Viscera and stool glow in dark (due to luminosity).
- To preserve luminosity, viscera are preserved in *saturated saline solution.* Rectified spirit is not used as it causes loss of luminosity.

639. Muttering delirium is seen with:
NEET 13

a) Ricinus

b) Dhatura

c) Cocaine

d) Aconite

Correct Answer - B
Ans. Dhatura

640. Ethylene glycol when ingested affects kidney by forming:
NEET 13

a) Formaldehyde

b) Oxalates

c) Phytates

d) Phosphates

Correct Answer - B
Ans. Oxalates

641. Chronic arsenic poisoning does not cause:
NEET 13,15

a) Mixed sensory and motor neuropathy

b) Mesothelioma

c) Hyperkeratosis of skin

d) Anemia

Correct Answer - B
Ans. Mesothelioma

642. Rain drop pigmentation is caused by ?

a) Clofazimine

b) Dapsone

c) Minocycline

d) Arsenic

Correct Answer - D
Ans. is 'd' i.e., Arsenic

643. Brutonian lines on gums is seen in poisoning with ?

a) Lead

b) Mercury

c) Mercury

d) Zinc

Correct Answer - A:B

Ans. is 'a > b' i.e., Lead > Mercury ***[Ref Reddy 30^{6}/e p.497-498]***

Burtonian line is blue line, which is seen on upper gums in lead poisoning.

Similar blue line (but not called burtonian line in these cases) is also seen in poisoning with Mercury (Hg), Copper (Cu), Silver (Ag), bismuth (Bi), and Iron (Fe).

644. Oochronosis is seen in which poisoning ?

a) Hydrochloric acid

b) Carbolic acid

c) Oxalic acid

d) Formic acid

Correct Answer - B

Ans. is 'b' i.e., Carbolic acid *[Ref Reddy 30th/e p. 489]*

Chronic carbolic acid poisoning/phenol marasmus

- The poisoning is characterised by anorexia, weight loss, headache, vertigo, dark urine and pigmentation of skin & sclera.
- Carbolic acid/ Phenol is converted into hydroquinone & pyrocatechol in the body before being excreted in the urine.
- Hydroquinone er pyrocatechol may cause pigmentation in the cornea and various cartilages- Oochronosis.
- Oochronosis is commonly associated with alkaptonuria, in which homegentisic acid gets deposited in cartilages, ligaments & fibrous tissues.

645. Opium is derived from:

NEET 13

a) Leaf

b) Root

c) Poppy seed

d) Unripe capsule

Correct Answer - D
Ans. Unripe capsule

646. Mechanism of cyanide poisoning is by inhibiting:
NEET 13

a) DNA synthesis

b) Cytochrome oxidase

c) Protein breakdown

d) Protein synthesis

Correct Answer - B
Ans. Cytochrome oxidase

647. Meaning of term vitriolage is:

a) Using vitriol for suicide

b) Using vitriol for murder

c) Vitriol throwing

d) Perforation of stomach caused by H2SO4

Correct Answer - C
C i.e. Vitriol throwing
Vitriolage (Vitriol throwing) is *throwing of any corrosive, not necessarily sulphuric acid (H_2SO_4) on another personQ.* Eyes are the most affected organs.

648. Antidote for strychnine poisoning is:

NEET 13

a) Fomepizole

b) Physotigmine

c) Barbiturates

d) Naloxone

Correct Answer - C
Ans. Barbiturates

649. Barium carbonate poisoning causes:
NEET 13

a) Respiratory distress

b) Gastrointestinal irritation

c) Muscular weakness

d) Cyanosis

Correct Answer - C
Ans. Muscular weakness

650. Oximes are contraindicated in which poisoning:
NEET 13

a) Malathion

b) Diazinon

c) Phorate

d) Carbamate

Correct Answer - D
Ans. Carbamate

651. Ethylene Glycol antidote is ?

a) Barbiturates

b) Acetycysteine

c) Ferric chloride

d) Fomipizole

Correct Answer - D
Ans. is 'd' i.e., Fomipizole *[Ref Reddy 30th/e* p. 533]
Antidote for ethylene glycol poisoning is fomipizole.

652. Tetany is caused by poisoning with:
NEET 13

a) Oxalic acid

b) Carbolic acid

c) Sulphuric acid

d) Nitric acid

Correct Answer - A
Ans. Oxalic acid

653. Widmark's formula helps in the measurements of blood level of:

a) Barbiturates

b) Cocaine

c) Alcohol

d) Benzodiazepines

Correct Answer - C
C i.e. Alcohol

654. Father of toxicology is:

NEET 13

a) Paracelsus

b) Galen

c) Galton

d) Orfila

Correct Answer - A

Paracelsus is called father of toxicology. Mathieu orfila is thought of as father of modern toxicology

655. Most common drug abuse in India ?

a) Cannabis

b) Amphetamine

c) Cocaine

d) Heroine

Correct Answer - D
Ans. is 'd' i.e., Heroin
Amongst the given options, heroin is the most commonly abused substance :

- Alcohol → 43.9 %
- Opioids (including heroin) → 26%
- Cannabis → 11.6 %

656. Black papper adultrant is ?

a) Khesari dal

b) Dried papaya seed

c) Fine sand

d) None

Correct Answer - B
Ans. is `b' i.e., Dried papaya seed

657. Hydrogen peroxide is used in all of the following chemical tests for blood except:
NEET 13

a) Benzidine test

b) Kastle Mayer test

c) Ortho toludine test

d) Teichmann test

Correct Answer - D
Ans. Teichmann test

658. Which snake bite causes hematologic abnormalities ?

a) Cobra

b) Crait

c) Viper

d) Sea snake

Correct Answer - C

Ans. is 'c' i.e., Viper ***[Ref Parikh &Ye p. 9.44]***

Hematotoxic	Vipers
Myotoxic	Sea snakes
Neurotoxic	Elapids- cobra, Krait, coral

659. Which of the following should not be done while dealing with a patient of snake bite ?

a) Tight band applied

b) Reassuarance

c) Local incision

d) Clean with soap and water

Correct Answer - C

Ans. is 'c' i.e., Local incision

Treatment of snake bite

- Reassurance should be given to patient.
- Application of pressure over bitten area which delays absorption of venom.
- Tie a broad firm bandage (tourniquet) proximal to the bitten area and around the limb which would occlude venous and lymphatic drainage but not arterial or deep venous flow.
- Limb immobilization.
- Local incision and suction should not be done as it can cause local injury and nerve damage.
- Clean the wound with soap and water or iodine and cover with sterile dressing.
- Polyvalent snake antivenom is given. However it is given only in following situations :

i. Rapidly progressive and severe local findings.

i. There are manifestations of systemic toxicity.

660. DNA finger printing cannot be taken from ?

a) Saliva

b) Tooth

c) Buccal mucosa

d) Blood

Correct Answer - B

Ans. is 'b' i.e., Tooth ***[Ref Parikh 6th le p. 7.2-7.15]***

DNA finger-printing/ DNA profiling

- Is a technique employed by forensic scientists to assist in the identification of individuals by their respective DNA profile
- it is a fool proof method to conclusively fix the paternity/ maternity.
- The most desirable method of collecting a reference sample is the use of a buccal swab. When this is not available (e.g.
- because a court order may be needed and not obtainable) other methods may need to be used to collect a sample of blood,
- saliva, semen, or other appropriate fluid or tissue from personal items (e.g. toothbrush, razor, etc.) or from stored
- samples (e.g. banked sperm or biopsy tissue)

661. Not a grievous injury:
September 2005

a) Multiple scars of face

b) Fracture of femur

c) Emasculation

d) Contusion of breast

Correct Answer - D

Ans. D: Contusion of breast

Sec 320 IPC: any of the following injures are grievous?

- Emasculation
- Permanent privation of sight or either eye
- Permanent privation of Hearing or either ear
- Permanent privation of any member or joint
- Permanent disfiguration of the head or face
- Destruction or permanent impairing of the power of any member or joint
- Fracture or dislocation of a bone or tooth
- Any hurts which endangers life, or which causes the victim to be in severe bodily pain or unable to follow his ordinary pursuits for a period of twenty days

662. Lendrum stain is done for ?

a) Air embolism

b) Fat embolism

c) Amniotic fluid embolism

d) None

Correct Answer - C

Ans. is 'c' i.e., Amniotic fluid embolism ***[Ref Handbook of autopsy practise 3rdIe p. 283]***

Amniotic fluid embolism diagnosis

- Sections of lungs and other organs are stained using Phloxine-Tartrazine (Lendrum staining) to detect squames,
- Alcian Blue to detect mucin.
- Sudan Black or Oil Red to detect vernix caseosa.

663. Malarial parasite was discovered by-

a) Ronald ross

b) Paul muller

c) Laveran

d) Pampania

Correct Answer - C
Ans. is 'c' i.e., Laveran
. The specific causative agent of malaria was discovered in the red blood cells of a patient in 1880 by Alophonse Laveran, a French army surgeon in Algeria.
Remember
. Romanowsky developed a method of staining malaria parasites in blood films.

664. Which of the following is a protista-

a) Algae

b) Fungi

c) Protozoa

d) Bacteria

Correct Answer - C
Ans. is 'c' i.e., Protozoa

665. Katayama fever is caused by -

a) F. hepatica

b) C. sinensis

c) S. haematobium

d) A. lumbricoides

Correct Answer - C
Ans. is 'c' i.e., S. haematobium
Katayama fever (Acute Schistosomiasis) occurs in about a month after infecion with S. japonicum and S. mansoni and rarely with S. haematobium.

666.

Which part of bacteria is most antigenic *?*

a) Protein coat

b) Lipopolysaccharide

c) Nucleic acid

d) Lipids

Correct Answer - A
Ans. is d i.e., Lipids

- Proteins are most immunogenic, while lipids & nucleic acids are least immunogenic.
- Polysaccharides (carbohydrates) are *less immunogenic* than protein antigens, but are *more antigenic* than lipids & nucleic acids.

667. The correct order of gram staining is

a) Gentian violet → Iodine → Carbol fuchsin

b) Iodine → Gentian violet → Carbol fuchsin

c) Carbol fuchsin → Iodine → Gentian violet

d) Carbol fuchsin → Gentian violet → Iodine

Correct Answer - A

Answer-A- Gentian violet → Iodine → Carbol fuchsin

1. Application of the primary stain (crystal violet). Gentian violet also known as crystal violet stains all cells blue/purple
2. Application of mordant: The iodine solution (mordant) is added to form a crystal violet-iodine (CV-I) complex; all cells continue to appear blue.
3. Decolourization step: The decolourization step distinguishes gram-positive from gram-negative cells. The organic solvent such as acetone or ethanol extracts the blue dye complex from the lipid-rich, thin-walled gram-negative bacteria to a greater degree than from the lipid-poor, thick-walled, gram-positive bacteria. The gram-negative bacteria appear colourless and gram-positive bacteria remain blue.
4. Application of counterstain (safranin): The red dye safranin stains the decolourized gram-negative cells red/pink; the gram-positive bacteria remain blue.

NOTE → If you are struggling to remember the staining reagents used in this procedure and their order you can remember this sentence “Come In And Stain” i.e. the order is Crystal violet, Iodine, Alcohol/Acetone and the final one is Safranin.

668. Flagella not true -

a) Locomotion

b) Attachment

c) Protein in nature

d) Antigenic

Correct Answer - B
Ans. is 'b' i.e., Attachment

669. In nutrient agar concentration of agar is -

a) 1%

b) 1.5 %

c) 3%

d) 4%

Correct Answer - B
Ans. is 'b' i.e., 1.5%

- Nutrient Agar is a general-purpose, nutrient medium used for the cultivation of microbes supporting the growth of a wide range of non-fastidious organisms. Nutrient agar is popular because it can grow a variety of types of bacteria and fungi, and contains many nutrients needed for the bacterial growth.
- Nutrient agar is made by adding 1.5% agar to the nutrient broth.
- 0.5% Peptone
- 0.3% beef extract/yeast extract.
- 0.5% NaCl
- Distilled water
- pH is adjusted to neutral (7.4) at 25 °C.

670. Enrichment media for cholera ?

a) VR medium

b) TCBS medium

c) Cary-Blair medium

d) Alkaline peptone water

Correct Answer - D
Ans. is 'd' i.e., Alkaline peptone water

671. Blood agar is an example of ?

a) Enriched media

b) Indicator media

c) Enrichment media

d) Selective media

Correct Answer - A
Ans. is 'a' i.e., Enriched media

672. In donovanosis-

a) Pseudolymphadenopathy

b) Penicillin is used for treatment

c) Painful ulcer

d) Suppurative lymphadenopathy

Correct Answer - A

Ans. is `a' i.e., Pseudolymphadenopathy

Donovanosis

- Caused by Calymmatobacterium granulomatis.

C. granulomatis is ?

- Gram negative
- Encapsulated
- Nonmotile

Intracellular

- It shares many morphologic and serologic characteristic (antigenic) and > 99% homology at the nucleotide level with Klebsiella.
- Clinical manifestations

IP → 1-4 weeks

- Begins as one or more subcutaneous nodules that erode through skin to produce clean, granulomatous, sharply defined, usually painless lesions.
- The genitalia are involved in 90% of cases.
- Genital swelling, particularly of labia, is common.
- In donovanosis, heaped-up granulomatous tissue may follow and via subcutaneous extension to inguinal area may form "pseudo-buboes"; however, the absence of true lymphadenopathy is the hallmark of this infection.
- Complications Pseudoelephantiasis, phimosis and paraphimosis.

Diagnosis:

- The preferred diagnostic method involves demonstration of typical intracellular Donovan bodies within large mononuclear cells visualized in smears prepared from lesions or biopsy specimens.
- Stain used is wright - Giemsa

Treatment:

- Azithromycin (DOC)
- Doxycycline (2'^{d} choice)
- Chloramphenicol

673. Necrotizing fascitis is caused by -

a) Staphylococcus aureus

b) Beta hemolytic streptococci

c) Clostridium perfringens

d) Pneumococcus

Correct Answer - B

Ans. is 'b' i.e., Beta hemolytic streptococci

- The spectrum of infections of the *deep soft tissues* ranges from localized bacterial, viral and parasitic lesions to rapidly spreading, tissue destructive infections such as necrotizing fascitis and myonecrosis.

A) Pyomyositis :- It is common in tropics, therefore also called *tropical pyomyositis.* It is a localized infection of skeletal muscles. It is caused most commonly by *staphylococcus aureus.*

B) Necrotizing fascitis Necrotizing fascitis is an infection of the deeper layers of skin and subcutaneous tissues, easily spreading across the fascial plane within the subcutaneous tissues. There are two types of necrotizing fascitis *:?*

i) Type 1:- It is a polymicrobial infection, i.e. mixed aerobic and anaerobic infection. It occurs most commonly after surgical procedures in diabetic patients or in those who have peripheral vascular disease.

ii) Type 2 :- It is caused most commonly by streptococcus pyogenes (Group A beta hemolytic streptococci).

C) Clostridial myonecrosis (Gas gangrene) :- It is characterized by rapid and extensive necrosis of muscle accompanied by gas formation and systemic toxicity. It is caused by *C. perfringens (most common), C. novyi, C. septicum and C. histolyticum.* It is also called

type III necrotizing fascitis.

674. Staph aureus causes -

a) Erythrasma

b) Chancroid

c) Acne vulgaris

d) Bullous impetigo

Correct Answer - D
Ans. is 'd' i.e., Bullous impetigo

- Impetigo is divided into two types *:?*
i) *Non-bullous impetigo (Impetigo contagiosum) :-* Caused by staphylococcus aureus and streptococcus pyogenes.
ii) *Bullous impetigo :-* Caused by staphylococcus aureus.

675. TRUE about mycoplasma is -

a) Causes lung infection

b) Penicillin is drug of choice

c) Thick cell wall

d) Thallium acetate inhibits the growth

Correct Answer - A
Ans. is 'a' i.e., Causes lung infection
Mycoplasma infections
. *Mycoplasma pneumoniae causes infection of upper and lower respiratory tract.*
. Highest attack rates in 5 - 20 years old.
. Children < 5 yrs Upper respiratory symptoms
. Children > 5 yrs —0. Bronchitis and pneumonia
. disease. About other options
. Penicillin is not active against mycoplasmas.
. Mycoplasmas lack cell wall.
Mycoplasmas are *resistant to thallium acetate* in a concentration of 1:10000

676. A child come with fever, cold, cough, membrane over tonsils; nasal swab is taken, culture should be done on which medium for earliest diagnosis ?

a) Loffelers serum slop

b) L. J. media

c) MC Conkey's Agar

d) Citrate media

Correct Answer - A

Ans. is 'a' i.e., Loffelers serum slop [Ref: Ananthanarayan ele p. 233]

Fever, cold, cough with membrane on tonsils suggest the diagnosis of diphthesia.

For rapid growth the specimen is inoculated on Loeffer's serum slop. Diphtheria bacilli grow on Loeffler's serum slope very rapidly and colonies can be seen in 6-8 hours, long before other bacteria grow

677. Botulism is most commonly due to -

a) Egg

b) Milk

c) Meat

d) Pulses

Correct Answer - C
Ans. is 'c' i.e., Meat
Following new types of botulism have been added in 18th/e of Harrison
. *Adult intestinal toxemia botulism :-* results from absorption of toxin produced in situ after rarely occuring intestinal colonization with toxigenic clostridia.
. *Iatrogenic botulism :-* results from injection of botulism toxin.

678. True about chlamydia are all except:

a) Obligate intracellular organism

b) Gram positive

c) Reticulate body is metabolically active

d) Replicate by binary fission

Correct Answer - B
Ans. is. 'b' i. e., Gram positive

679. Which group of streptococcus grow at > 60°C

a) A

b) B

c) C

d) D

Correct Answer - D
Ans. is 'd' i.e., **D**
Among streptococci, enterococcus (group D streptococcus) is heat resistant.

680. Pigment producing atypical mycobacteria ?

a) M. fortution and M. chelonae

b) M. xenopi and MAC

c) M. gordonae and M. szulgai

d) M. ulcerans

Correct Answer - C

Ans. is 'c' i.e., M. gordonae and M. szulgai

- Non-tubercular mycobacteria (also called atypical mycobacteria) have been classified into four groups by Runyon based on pigment production and rate of growth.

1) Group I (photochromogens) :- These produce pigmented colonies (yellow-orange) only when exposed to light, but not in dark. Examples of photochromogens are *M. asiaticum, M. kansasii, M. marinum,* and *M. simiae.*

2) Group II (scotochromogens) :- These always produce pigmented colonies (yellow-orange-red), i.e. in dark as well as in light. Scotochromogens are *M. flovescens, M. gordonae, M. scrofulaceum and M. szulgi.*

3) Group HI (Nonchromogens) :- These do not produce pigment. Nonchromogens are *M. avium complex (MAC), M. haemophilum, M. gastri, M. ulcerans, M. xenopi and M. nonchromogenicum.*

4) Group IV (rapid growers) :- This is heterogeneous group of mycobacteria capable of rapid growth, colonies appearing within 7 days of incubation. Within the group, photochromogenic, scotochromogenic and nonchromogenic species occur. *Chromogenic (pigment producing)* rapid growers are mostly saprophytic, e.g. M. phlei and M. smegmetis. M. fortuitum and M.

chelonei do not produce any pigment. Other rapid growers are *M. abscessus, M. vaccae, M. genevense, M. confluentis,* and *M. intermedium.*

681. Seven sheathed flagella is seen in -

a) V cholera

b) H pylori

c) Ps aeroginosa

d) Spirochetes

Correct Answer - B
Ans. is 'b' i.e., H. pyroli

- H. pylori has five to seven sheathed polar flagella.
- Vibrio cholerae and Pseudomonas aeruginosa have single polar flagellum. Occasional strains of pseudomonas may contain 2 or 3 flagella.

Spirochetes (Treponema) is motile by endoflagella.

682. True about H influenza -

a) Grown on sheep blood agar & CO2

b) it is not capsulated

c) Invasive strain is most common

d) Gram positive

Correct Answer - C
Ans. is 'c' i.e., Invasive strain is most common

- Invasive disease is more common than non-invasive disease.
- H. influenzae does not grow on blood agar.
- It is gram negative and capsulated.

683. Meningococci differ from gonococci in that they?

a) Are intra-cellular

b) Possess a capsule

c) Cause fermentation of glucose

d) Are oxidase positive

Correct Answer - B
Ans. is 'b' i.e., Possess a capsule

684. Cholera toxin is due to -

a) Chromosome

b) Plasmid

c) Phage

d) Transposons

Correct Answer - C
Ans. is 'c' i.e., Phage
. Cholera toxin production is determined by *a filamentous phage* integrated with bacterial chromosome.

685. Which of the following is the mechanism of action of tetanospasmin ?

a) Inhibition of release of GABA and glycine

b) Inhibition of Ach release from synapse

c) Inhibition of protein synthesis

d) Activation of adenylyl cyclase

Correct Answer - A

Ans. is 'a' i.e., Inhibition of release of GABA and glycine

Pathogenicity

- *CL tetani has little invasive property and is confined to the primary site of lodgment.* Tetanus results from the action of the potent exotoxin it produces.

686. Virulence of gonococci is due to -

a) Pili

b) Endotoxin

c) Exotoxin

d) None

Correct Answer - A
Ans. is 'a' i.e., Pili
. Major virulence factor for gonococci is pill (fimbriae).

687. Tabes dorsalis is seen in -

a) Primary syphilis

b) Secondary syphilis

c) Tertiary syphilis

d) Latent syphilis

Correct Answer - C
Ans. is 'c' i.e., Tertiary syphilis

688. Meningitis with rash is seen in -

a) Neisseria meningitidis

b) H. influenzae

c) Strepto. agalactae

d) Pneumococcus

Correct Answer - A
Ans. is 'a' i.e., Neisseria meningitidis

689. Ehrlichia chaffeensis is causative agents of

a) HME

b) HGE

c) Glandular fever

d) None

Correct Answer - A
Ans. a. HME

690. Invasive infection s caused by all except ?

a) Shigella

b) Salmonella

c) V. cholerae

d) Yersinia

Correct Answer - C
Ans. is 'c' i.e., V. cholerae [Ref Harrison tele p. 1084]

691. A child with fever with ABCs & pus in stools, causative organism is ?

a) ETEC

b) EHEC

c) EPEC

d) EAEC

Correct Answer - B

Ans. is 'b' i.e., EHEC [Ref Harrison 18thle p. 1084]

Fever with RBC and pus in stools suggest inflammatory diarrhea. Amongst the given options EHEC causes invasion.

692. What is NOT true about yersiniosis -

a) *Gram-negative bacillus*

b) Caused by Y pestis

c) By yersinia enterocolitica

d) By yersinia pseudotuberculosis

Correct Answer - B
Ans. is 'b' i.e., Caused by yersinia pestis
Yersiniosis is an infectious disease caused by a bacterium of the genus *Yersinia.*
Yersinia enterocolitica *is a Gram-negative bacillus-shaped bacterium, belonging to the family Yersiniaceae. It is motile at temperatures of 22–29° C (72-84°F), but becomes nonmotile at normal human body temperature.[1][2] Y. enterocolitica infection causes the disease yersiniosis, which is an animal-borne disease occurring in humans, as well as in a wide array of animals such as cattle, deer, pigs, and birds.*

- Infection caused by yersinia genus are divided into :-

i) Plague :- It is a deadly infectious disease caused by *yersinia pestis.*
ii) Yersinosis :- It is characterized by infectious diarrhea, enteritis, ileitis and occasionally septicemia. It is caused by *yersinia enterocolitica* (most common) and *yersinia pseudotuberculosis.*

693. All are true about B. Quintana except -

a) Causes trench fever

b) Not detected by weil felix reaction

c) Recurrence is common

d) Tick is the vector

Correct Answer - D
Ans. is 'd' i.e., Tick is the vector
Trench fever

- Trench fever, also called *5-day fever or quintan fever,* is caused by Bartonella quintana (Rochalimaea quintana).
- The *human body louce (Pediculus humans corporis) is the vector* and humans is the only known reservoir. Clinical manifestations
- The incubation period is 15-25 days (range, 3-38 days).
- 'Classical' trench fever presents as febrile illness. Fever is exceedingly variable, but commonly *lasts for about 5 days.* The fever is followed by a remission and a *recurrence after 5 days. These recurrences may be single or multiple and upto 12 recurrences every 5-6 days are not uncommon.*
- Other symptoms and signs include headache, back and limb pain, profuse sweating, shivering, myalgia, arthralgia, splenomegaly, a maculopapular rash in occasional cases, and nuchal rigidity in some cases.

Diagnosis

- Definitive diagnosis requires isolation of B. quintana by blood culture.
- *Weil-Felix test used for diagnosis of ricketssial infection is negative in trench fever.*

Treatment

- It is treated with gentamycin along with doxycycline.

694. Painless genital ulcer in male with everted margin is seen in ?

a) Syphilis

b) Chancroid

c) Herpes

d) LGV

Correct Answer - A

Ans. is 'a' i.e.,Syphilis [Ref Harrison 18th/e p. 1382, Jawetz 22"/e p. 642]

Painless indurated ulcer with everted margins, h/o of sexual exposure and lack of systemic symptoms favours the diagnosis of syphilis.

695. Leptospirosis is transmitted by:

a) Rat

b) Cat

c) Dog

d) Fish

Correct Answer - A
Ans. is. 'a' i. e., Rat

696. Fish tank granuloma is seen in -

a) M fortuitum

b) M kansasi

c) M marinum

d) M leprosy

Correct Answer - C
Ans. is 'c' i.e., M. Marinum

- ' Fish tank granuloma', also called swimming pool granuloma' , is caused by M. marinum.

697. Actinomycosis is sensitive to ?

a) Streptomycin

b) Nystatin

c) PenciIlin

d) Iodox - uridine

Correct Answer - C
Ans. is 'c' i.e., Pencillin

698. All cause fournier gangrene *except-*

a) Staphylococcus

b) Streptococcus

c) Clostridium

d) Bacteroides

Correct Answer - C
Ans. is 'c' i.e., Clostridium

- Fournier's gangrene is a necrotising fascitis of genitalia, usually affecting the scrotum and penis.
- There have been many types of bacteriological culture encountered in Fournier's gangrene, both single strain and polymicrobial culture. *Majority of cases are due to mixed infection* caused by both aerobic and anaerobic bacteria.
- Following are common causative organisms : *Staphylococcus aureus, streptococcus pyogenes* ((3-hemolytic streptococci), enterobacteriaceae (E. coli, klebsiella, proteus), enterococci, pseudomonas, and anaerobes like *bacteroides* and peptostreptococcus.

699. Reactive tubercular arthritis:

a) Spina ventusa

b) Pott's disease

c) Poncet's disease

d) None

Correct Answer - C
Ans. is. 'c' i. e. Poncet's disease

700. Schistosomiasis is transmitted by ?

a) Cyclops

b) Fish

c) Snaile

d) Cattle

Correct Answer - C
Ans. is 'c' i.e., Snails

- Intermediate host for schistosoma sp. is snail.

701. True about trematodes

a) Two host required

b) Segmented

c) Anus present

d) Body cavity present

Correct Answer - A
Ans. is 'a' i.e., Two host required

- Medically important member of the class trematoda belong to subclass Digenea, as they are digenetic, i.e. *require two hosts.* The definitive host in which they pass the sexual or adult stage are mammals, humans or animals, and the intermediate hosts in which they pass their asexual or larval stages are freshwater molluscs or snails.
- Trematodes are unsegmented, and have no anus and body cavity.

702. Which organism can be isolated from stool & sputum -

a) Paragnomus

b) Fasciola

c) Chlornchis

d) P. carini

Correct Answer - A
Ans. is 'a' i.e., Paragnomus [Ref Rajesh karyakarte p. 212]
Two organism can be isolated from both sputum and stool :-
1. Trophozoite of E. histolytica
2. Eggs of Paragonimus

703. True about diphyllobothrium:

a) Man is single host

b) Iron deficiency anemia is seen

c) Operculated egg is diagnostic

d) Fish is the definitive host

Correct Answer - C
Ans. c. Operculated egg is diagnostic

704. Cercariae are infective form *of-*

a) S. hematobium

b) P. westermanii

c) F. hepatica

d) T. solium

Correct Answer - A
Ans. is 'a' i.e., S. hematobium

- Cercaria of Schistosoma hematobium is the infective form.

705. Unsegmented eggs are in which parasite?

a) Trichuris trichura

b) Ancylostoma

c) Necator americanus

d) Dracunculus

Correct Answer - A
Ans. a. Trichuris trichura

706. In malaria, sexual cycle is -

a) Sporozoite to gametocytes

b) Gametocytes to Sporozoite

c) Occurs in human

d) Responsible for relapse

Correct Answer - B
Ans. is 'b' i.e., Gametocytes to sporozoite
LIFE CYCLE OF PLASMODIUM
Plasmodium passes its life cycle in two different hosts ?
.. Human (intermediate host)
?. Female anapheline mosquito (Definitive host)
Human cycle
. Human cycle starts with the introduction of sporozoites by the bite of an infected anapheline mosquito.
. It comprises the following stages.
1) Pre - erythrocytic schizogony
- Occurs inside the parenchyma cells of the liver.
- During this phase the parasites are not found in the peripheral blood (blood is sterile).
- The librated *merozoites* are called *cryptozoites.*
- Micromerozoites enter the circulation and start Erythrocytic schizogony, while macromerozoites re-enter the liver cells and start exoerythrocyticycle *(exoerythrocytic cycle does not occur in P falciparum).*
- Duration of pre-erythrocytic schizogony
P. vivax —> 8 days P. malariae —f 15 days
P. falciparum —> 6 days P. ovale --

> 9 days

2) Erythrocytic schizogony

- Parasite resides inside the RBCs.
- Passes through the stages of trophozoite, Schizont and merozoite.
- *The parasitic multiplication during the erythrocytic phase is responsible for bringing on a clinical attack of malaria.*
- Duration

P. vivax, P. ovale, P. falciparum —> 48 hrs

P. malariae --> 72 hours

3) Gametogony

- After erythrocytic schizogony, some of the merozoites develop into gametocytes.
- *The individual who harbours the gametocytes is known as a carrier.*

4) Exoerythrocytic schizogony

- Some of merozoites, after pre-erythrocytic schizogony, reinfect liver parenchyma cells to start exoerythrocytic schizogony.
- Merozoites liberated from exo-erythrocytic schizogony are called phanerozoites.
- *It is absent in P. falciparum.*
- *It is responsible for the relapse.*

<u>Mosquito cycle</u>

- <u>Sexual cycle</u> occurs in female Anopheles.
- Gametocytes are transferred to the insect.
- Gametocytes develop into sporozoites after complete sexual cycle.
- Sporozoites are infective to man.

707. Which type of malaria is associated with renal failure -

a) Falciparum

b) Vivax

c) Malariae

d) Ovale

Correct Answer - A
Ans. is 'a' i.e., Falciparum

- Nephrotic syndrome —> quarta malaria (P. malariae)
- *Acute tubular necrosis (renal failure)* malignant tertian malaria or pernicious malaria (caused by *P falciparum).*

708. Malaria causing nephrotic syndrome -

a) P. vivax

b) P. falciparum

c) P. malariae

d) P. ovale

Correct Answer - C
Ans. is 'c' i.e., P-malariae
Nephrotic syndrome is seen in Quartan malarial nephropathy, caused by repeated or chronic infection with P. malariae.

709. Hanging drop method is used for-

a) T. trichomonas

b) Plasmodium

c) Toxoplasma

d) Cryptosporidium

Correct Answer - A
Ans. is 'a' i.e., T. trichomonas

- Hanging drop method is used for examining motility of micro-organisms.
- Motility of trichomonas vaginalis may also be observed by this method.

710. Rhaditiform larvae is seen in ?

a) Tenia solium

b) Strongyloides

c) D. latum

d) Trichenella

Correct Answer - B

Ans. is `b' i.e., Strongyloides [Ref Panikar 6th/e p. 171]

Rhabditiform larva is the first stage feeding larva found in some nematodes. It is non-infective.

Filiform larva is the non feeding infective larva in some nematodes.

Rhabditiform larva and filiform larva are found in following important nematodes

711. Wucheria bancrofti, true is -

a) Unsheathed

b) Tail tip free from nuclei

c) Non-periodic

d) All

Correct Answer - B
Ans. is 'b' i.e., Tail tip free from nuclei
W. bancrofti is sheathed and periodic with tail tip free from nuclei.

712. Flame cells are seen in:

a) Protozoa

b) Cestode

c) Nematodes

d) None

Correct Answer - B
Ans. b. Cestode
Flame cell (also called solenocyte) is the excretory cell in *cestodes* and *trematodes,* the number and arrangement of which is used as a basis for identification.
The cell has a tuft of cilia, whose beating resembles the flickering of a flame.
The flame cells open into a collecting tubule.

713. Which of the following is toxic to parasite -

a) Peroxidase

b) Interferon

c) IL-2

d) IL-6

Correct Answer - A

Ans. is 'a' i.e., Peroxidase

- Neutrophils and monocytes contain a peroxidase (myeloperoxidase), that has been implicated in antiparasitic activity. However, monocytes lose this enzyme when they mature into macrophages.
- Eosinophils also contain peroxidase that differs from myeloperoxidase of neutrophils. However, like myeloperoxidase, eosinophil peroxidase combines with H_20, and a halide to form an antiparasite system.

Parasite		Egg size
1)	Fasciola gigantica	190 X 100 m
2)	Echinostoma iliocanum	100 X 70 m
3)	Gastrodiscoides hominis	150 X 70-100 m
4)	Opisthorcis viverni	<30 X 15 m

714. Toxoplasma in children causes:

a) Chorioretinitis

b) Conjunctivities

c) Keratitis

d) Papillitis

Correct Answer - A
Ans. a. Chorioretinitis

715. Which of the following is only yeast ?

a) Candida

b) Mucor

c) Rhizopus

d) Cryptococcus

Correct Answer - D
Ans. is d i.e., Cryptococcus

716. Regarding fungal cell wall all are true except:

a) Contains chitin

b) Prevent osmotic damage

c) Azoles act on them

d) Does not contain peptidoglycan

Correct Answer - C
Ans. c. Azoles act on them

717. Renauld Braud phenomenon is seen is:

a) Candida albicans

b) Candida pscitasi

c) Histoplasma

d) Cryptococcus

Correct Answer - A
Ans. a. Candida albicans

718. Largest intestinal protozoa is ?

a) E. coli

b) Balantidium coli

c) Giardia

d) T. gondii

Correct Answer - B

Ans. is 'b' i.e., Balantidium coli *[Ref Paniker p. 111]*

Largest protozoa	**Balantidum coli**
Smallest intestinal amoeba	Dientamoeba fragilis
Smallest tapeworm found in human intestine	H. nana
Largest helminth (largest worm)	T. saginata (beef tapeworm)
Largest liver fluke	F. hepatica
Largest trematode infecting man→	Fasciolopsis buski
Largest Nematode	Ascaris
Smallest Nematode -	Trichinella
Only protozoan parasite found in small intestine of man	Giardia lamblia
Only ciliate protozoan parasite of man -	Balantidum coli
Parthenogenic worm (female is able to produce fertile eggs or larvae without fertilization)	Strongyloides stercoralis.

719. Trichophyton species which is zoophilic ?

a) T. tonsurans

b) T. violaceum

c) T. schoenleinii

d) T. mentagrophytes

Correct Answer - D
Ans. is 'd' i.e. T. mentagrophytes

- Zoophilic dermatophytes are the species which primarily infect animals and occasionally transmitted to humans.
- Zoophilic species of trichophyton are *T. montegrophytes* and *T verrucosum.*
- Other zoophilic species of dermatophytes is *M. canis.*

720. Aseptate hyphae is not seen in -

a) Rhizopus

b) Mucor

c) Aspergillus

d) None

Correct Answer - C
Ans. is 'c' i.e., Aspergillus

- Non-septate (aseptate) hyphae --> Rhizopus, mucor.
- Septate hyphae —> Aspergillus.

721. Which of the following is primary cell line ?

a) Chick embryo fibroblast

b) Hela cells

c) Vero cells

d) WI-38

Correct Answer - A
Ans. is 'a' i.e., Chick embryo fibroblast

- Chick embryo fibroblast is primary cell culture.

722. Virus quantification is done *by-*

a) Egg inoculation

b) Hemadsorption

c) Plaque assay

d) Electron microscopy

Correct Answer - C
Ans. is 'c' i.e., Plaque assay

- Plaque assay and Pock assay are quantitative infective assays.

723. Which is enveloped virus -

a) Dengue virus

b) Norwalk virus

c) Hep A virus

d) Adenovirus

Correct Answer - A
Ans. is 'a' i.e., Dengue virus

- Dengue virus (a member of flavivirodae) is an enveloped virus.
- Adenovirus, norwalk virus (calciviridae) and hepatitis A virus (Picornaviridae) are non-enveloped viruses.

724. Coxsackie virus is -

a) Harpes virus

b) Pox virus

c) Enterovirus

d) Myxovirus

Correct Answer - C
Ans. is 'c' i.e., Enterovirus

725. Serological testing of patient shows HBsAg, IgM anti-HBc and HBeAg postive. The patient hase -

a) Chronic hepatitis B with low infectivity

b) Acute hepatitis B with high infectivity

c) Chronic hepatitis with high infectivity

d) Acute on chronic hepatitis

Correct Answer - B
Ans. is `b' i.e., Acute hepatitis B with high infectivity

726. Congenital varicella infection causes all except:

a) Macrocephaly

b) Limb hypoplasia

c) Cortical atrophy

d) **Cicatrix**

Correct Answer - A
Ans. a. Macrocephaly

727. Diagnosis of rotavirus is by:

a) Stool antigen

b) Stool antibody

c) Stool culture

d) Blood antibody

Correct Answer - A
Ans. is 'a' i.e., Stool antigen [Ref: Hanison 18n/e p. 1591, 1592; Greenwood 1&/e p. 5251

- In Rotavirus diarrhoea, large no. of viruses are shed in faeces (at the peak of the disease, as many as l0rr virus particles can bedetected per ml of feces). These viruses can be easily detected by the following methods:
  i) Enzyme immunoassay (ELISA)
  It offers approximately 90% specificity & sensitivity for detection of virus in stools.
  ii) Latex agglutination
  iii) Immune electron microscopy
  --> Viral shedding detectable by these methods usually subsides within a week
  --> Virus in stools can be detected for longer periods by using techniques for detecting viral RNAs, such as PCR, Gel electrophoresis, probe hybridization.

728. Bollinger bodies are seen in ?

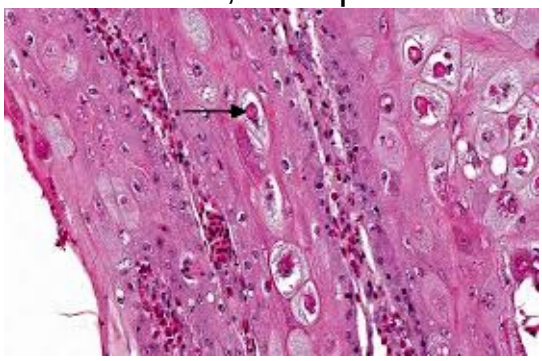
a) Chickenpox

b) Cowpox

c) Fowlpox

d) Smallpox

Correct Answer - C
Ans. is 'c' i.e., Fowl pox



729. Following virus is of pox virus -

a) Variola

b) Coxsachie

c) ECHO

d) HSV

Correct Answer - A
Ans. is 'a' i.e., Variola

730. Amplifier host is -

a) Pig in JE

b) Dog in rabies

c) Man in JE

d) Cattle in JE

Correct Answer - A
Ans. is 'a' i.e., Pig JE

731. False about p24 is

a) Seen after 3 weeks of infection

b) Cant be seen in first week

c) Cant be detected after seroconversion

d) a and c

Correct Answer - D
Ans. is 'a > c' i.e., Seen after 3 weeks of infection > Cant be detected after seroconversion
Antigen detection in HIV

- Following a single massive infection, as by blood transfusion, the virus antigens may be detectable in blood *after about two weeks.* The major core antigen, p24 is the earliest virus marker to appear in the blood and is the one tested for. IgM antibodies appear in about 4-6 weeks, to be following by IgG antibodies.
- If the infecting dose is small, as following a needle-stick injury, *the process may be considerably delayed.*
- The appearance of p24 antigenemia and viremia, followed by IgM antibody response, coincides with acute or *seroconversion illness. Afterwards, free p24 antigen disappears from circulation and remains absent during the long asymptomatic phase,* to reappear only when severe clinical disease sets in.
- However antibody-bound p24 antigen continues to be demonstrable, after dissociation. The p24 antigen capture assay *(ELISA)* which uses anti-p24 antibody as the solid phase can be used for this. The test is positive in about 30% of HIV infected persons. With prior dissociation of antigen-antibody complex, the positivity rate increases to about 50%.
- The test is most useful in persons recently exposed to risk of

infection, *in* whom the antibody test is negative.
Now coming to the question

- Option b & d are straight-forward. p24 antigen is detected by ELISA (enzyme immuno-assay or enzyme linked immuno-assay) and is not detectable in first week after the infection.
- Option 'a' incorrect because though the p24 antigen can be detected after 2 weeks of infection *:"The p24 antigen test can detect the p24 antigen on average 10-14 days after infection with HIV". "Following a single massive infection, the virus antigens may be detectable in blood after about two weeks".*
- Option 'c' is partly correct and partly incorrect because :-
  i) Free p24 antigen is not detectable after seroconversion.
  However, in 30-50% of infected persons, antibody-bound p24 antigen can be detected after its dissociation from antibody.

732. Which pox wont grow in egg, animal cells:

a) Cow pox

b) Vaccinia

c) Variola

d) **Molluscum**

Correct Answer - D
Ans. d. Molluscum

733. Appearance of cowdry type A inclusion bodies?

a) Granular

b) Circumscribed

c) In polio

d) None

Correct Answer - A
Ans. is 'a' i.e., Granular

- Intranuclear inclusion bodies were classified into two types by cowdry :
a) Cowdry type A :- These are of variable size and *granular in appearance,* e.g. in *herpesvirus and yellow fever virus.*
b) Cowdry type B :- These are more circumscribed and often multiple, as with *adenovirus and poliovirus.*

734. Small pox belongs to which class of poxviruses ?

a) Parapoxvirus

b) Capripoxvirus

c) Leporipox virus

d) Orthopoxvirus

Correct Answer - D
Ans. is 'd' i.e., Orthopoxvirus
i) *Entomopoxvirinae :* Poxviruses of insects which do not infect vertebrates.

- Chordopoxvirinae are classified into six genera or subgroups -

i) Orthopoxvirus : These are mammalian poxviruses that tend to cause generalized infection with rash. Exmples are *variola (smallpox virus),* vaccinia, cowpox, monnkeypox, rabbitpox, buffalopox, camelpox, mousepox.
ii) Parapoxvirus : Viruses of ungulates that may occasionally infact human, eg. Orf (contagious pustular dermatitis) and paravaccinia (milker's node, bovine pupular stomatitis).
iii) Copripoxvirus : Viruses of goat and sheeps, eg. sheep-pox, goatpox, lumpy skin disease.
iv) Leporipox virus : Viruses of of leporids (rabbits, hares, squirrels), e.g. myxoma and fibromas.
v) Avipoxvirus : Virus of birds, eg. fowlpox, turkeypox, pigeonpox, canarypox.
vi) Suipoxvirus : Virus of swine, eg. swinepox.

735. Brick-shaped virus -

a) Chicken pox

b) Small pox

c) CMV

d) EBV

Correct Answer - B
Ans. is 'b' i.e., Small pox
Variola virus

- Belongs to *Poxviruses* enveloped DNA (ds DNA) virus.
- *Brick shaped*
- In stained preparation elementary bodies are seen —) *Paschen bodies.*
- The variola virus is the causative agent of small pox.
- On 8^{th} may 1980 who anounced global eradication of small pox.

Vaccinia virus

- It is similar to variola virus in properties.
- It is an artificial virus and does not occur in nature as such.
- Vaccinia virus is being employed as a vector for the development of recombinant vaccines.
- Vaccinia genome can accomodate about 25000 foreign base pairs, sufficient for introducing several genes.
- *Many genes have been inserted eg - HB* V, *HIV, rabies and for pharmacologically important products such as neuropeptides.*
- However it is not suitable as a vector for human use due to its pathogenic effects.

736. Binding of gp 120 causes:

a) Infection of target cell

b) Facilitation of co-receptor

c) Fusing of virus and target cell

d) None

Correct Answer - B
Ans. b. Facilitation of co-receptor

737. Nef gene in HIV is for use -

a) Enhancing the expression of genes

b) Enhancing viral replication

c) Decreasing viral replication

d) Maturation

Correct Answer - C
Ans. is 'c' i.e., Decreasing viral replication
Nonstructural HIV genes
o These are **?**
1) **Tat** (Trans-activating gene) : Enhancing the expression of all viral genes.
2) **Nef** (Negative factor gene) : *Down-regulating viral replication.*
3) **Rev** (Regulator of viral gene) : Enhancing expression of structural proteins.
4) **Vif** (Viral infectivity factor gene) : Influencing infectivity of viral particles.
5) **Vpu** (In HIV-1) and **vpx** (In HIV-2) : Enhance maturation and release of progeny of virus from cells.
6) **Vpr :** Stimulates promotor region.
7) **LTR (Long terminal repeat) sequence :** Contains sequences which give promotor, enhancer and integration signals.

738. What is p24 ?

a) Envelop antigen in HIV

b) Core antigen in HIV

c) Genome of HIV

d) Shell antigen

Correct Answer - B

Ans. is 'b' i.e.,Core antigen in HIV ***[Ref Ananthanarayan 8th ie p. 571]***

A. Envelop antigens

- Spike antigen - gp 120 (Principal envelope antigen)
- Transmembrane pedicle protein - gp 41
- B. Shell antigen
- Nucleocapsid protein - p 18
- C. Core antigens
- Principal core antigen - p 24
- Other core antigens - p 15, p 55
- Polymerase antigens - p 31, p 51, p 66

739. Hemorrhagic fever is caused *by* -

a) West-Mile fever

b) Sandfly fever

c) Ebola virus

d) All of the above

Correct Answer - C
Ans. is 'c' i.e., Ebola virus

- Ebola virus belongs to hemorrhagic fever (see above explanation).

740. Influenza virus culture is done on ?

a) Chorioallantoic membrane

b) Allantoic cavity

c) Yolk sac

d) All

Correct Answer - B
Ans. is b i.e., Allantoic cavity
In embryonated egg cultivation for influenza virus site of inoculation are :- *Allontoic cavity or amniotic cavity*
Inoculation sites in embryonated eggs

- Chorioallantoic membrane -4 HSV, Poxvirus, Rous-sarcoma virus
- Amniotic cavity -4 Influenza virus, mumps virus
- *Allantoic cavity* - *Influenza virus,* mumps virus, avian adenovirus, newcastle disease virus
- Yolk sac --> HSV, chlamydia, rickettisia

741. Colorado Tic fever is caused by:

a) Filoviridae

b) Reoviridae

c) Coronaviridae

d) Calciviridae

Correct Answer - B
Ans. b. Reoviridae

742. Idiotypic class of antibody is determined by -

a) Fc region

b) Hinge region

c) Carboxy end

d) Amino end

Correct Answer - D
Ans. is 'd' i.e., Amino end

- The idiotype is defined as the specific region of the *Fab portion* of the Ig molecule to which antigen binds.
- It is on aminoterminal where antigen binding site is present.

743. Prozone phenomenon is seen with?

a) Same concentration of antibody and antigen

b) In antigen excess to antibody

c) Antibody excess to antigen

d) Hyperimmune reaction

Correct Answer - C
. Ans. is 'c' i.e., Antibody excess to antigen

744. A patient with sore throat has a positive Paul Bunnell test. The causative organism *is*-

a) EBV

b) Adenovirus

c) CMV

d) Herpesvirus

Correct Answer - A
Ans. is 'a' i.e., EBV
. EBV associated malignancies
- Burkitt's lymphoma0
- *Nasopharynageal carcinoma*
- Hodgkin's disease (mixed cellularity type)
- Tonsillar Carcinoma
- T Cell lymphoma
- Thymoma
- Gastric carcinoma
- CNS lymphoma in AIDS and
- Angiocentric nasal NK/T cell immunoproliferative lesions
transplant recipient
- Angioimmuno- blastic lymphadenopathy
- Leiomyosarcoma Other associated nonmalignant conditions
-Oral hairy leukoplakia in AIDS patients
- Chronic fatigue syndrome
- X-linked lymphoproli ferative syndrome (Duncan's disease)
Laboratory diagnosis

1. *Heterophile antibodies test*

. The standard diagnostic procedure in children and young adults is heterophile antibodies test-Paul-Bunnell Test

. A titre of 40 fold or greater is diagnostic of acute EBV infection in a patient who has symptoms compatible with infectious mononucleosis.

- Test usually remains positive for 3 months.
- Test is usually negative in children < 5 years, in elderly or in patients with symptoms not typical of infectious mononucleosis.

. *Monospot test for heterophile antibodies is more sensitive than the classical heterphile test.*

2. *EBV specific antibody test*

. *Used in patients who lack heterophile antibodies (children*

anti-viral capsid antigen (anti-VCA) --> most common

anti-EBV nuclear antigen (anti-EBNA)

anti - early antigen (anti - EA)

745. Paul bunnel reaction is a type of

a) Agglutination

b) CF

c) Precipitation

d) Flocculation test

Correct Answer - A
Ans. is 'a' i.e., Agglutination test

- Paul Bunnell test is tube agglutination test.

746. Which cells cause rosette formation with sheep RBCs-

a) T cells

b) NK cells

c) Monocytes

d) All

Correct Answer - A
Ans. is 'a. T cells

747. All are ture about innate immunity except ?

a) Non-specific

b) First line of defence

c) Not affected by genetic affected

d) Includes complement

Correct Answer - C
Ans. is 'c' i.e., Not affected by genetic affected

748. Pentavalent immunoglobin ***is***

a) IgA

b) IgG

c) IgM

d) IgE

Correct Answer - C
Ans. is 'c' i.e., IgM

749. Center of complement pathway -

a) C3

b) CI

c) C5

d) C2

Correct Answer - A
Ans. is 'a' i.e., C3

750. A continuous quantitative data can be depicted with the help of: *September 2009*

a) Bar diagram

b) Pie chart

c) Histogram

d) Pictogram

Correct Answer - C
Ans. C: Histogram
Numerical data/quantitative data is data measured or identified on a numerical scale.
Numerical data can be analyzed using statistical methods, and results can be displayed using tables, charts, histograms and graphs.
For example, a researcher will ask a questions to a participant that include words how often, how many or percentage. The answers from the questions will be numerical.
Examples of quantitative data would be: 'there are 643 dots on the ceiling' or 'there are 735 pieces of bubble gum'. or 'there are 8 planets in the solar system'

751. Which of the following T cell independent Antigen acts through -

a) T-cell

b) B-cell

c) Macrophages

d) CD8+ T cells

Correct Answer - B
Ans. is 'b' i.e., B-cells

- T-cell independent antigens directly stimulates B-cells without processing by antigen presenting cells.

752. Maximum half life -

a) IgG

b) Ig A

c) IgM

d) Ig E

Correct Answer - A
Ans. is 'a' i.e., IgG

753. Which of the following immunoglobulin is responsible for opsonisation -

a) IgA

b) Ig G

c) Ig M

d) none

Correct Answer - C
Ans. is 'c' i.e., IgM > 'b' i.e., IgG

754. Opsonization takes place through -

a) C3a

b) C3b

c) C5a

d) C5b

Correct Answer - B
Ans. is 'b' i.e., C3b

755. Antigen idiotype is related to -

a) Fc fragment

b) Hinge region

c) C-terminal

d) N-terminal

Correct Answer - D
Ans. is 'd' i.e., N-terminal

- The idiotype is the specific region of the fab portion (not Fc fragment) of Ig molecule to which antigen binds.
- Idiotype (antigen binding site) is on variable region, which is at amino terminal (N-terminal).
- The aminoacid sequences of the variable regions are not uniformly variable along their length, but consist of relatively invariable and some highly variable zones.
- The higltly variable Zones are involved wlth the formation of antigen binding sites.
- The sites on the hyervariable regions that make actual contact with the epitopes are called"complementarity determining Regions.

756. Activation of classical complement pathway ?

a) IgA

b) IgG

c) IgM

d) IgD

Correct Answer - C
Ans. is 'c' i.e., IgM

757. Superantigen causes -

a) Polyclonal activation of T-cells

b) Stimulation of B cells

c) Enhancement of phagocytosis

d) Activation of complement

Correct Answer - A
Ans. is 'a' i.e., Polyclonal activation of T-cells

- *Superantigens are capable of activating up to 20% of the peripheral T-cell pool, where as conventional antigens activate < 1 in 10, 000.*

758. Complement formed in liver -

a) C2, C4

b) C3, C6, C9

c) C5, C8

d) C1

Correct Answer - B
Ans. is b' i.e., C3, C6, C9
Biosynthesis of complement components
. Complement components are synthesized in various sites of body :-
i) Intestine —> Cl
ii) Macrophages —> C2, C4
iii) Spleen —> C5, C8
iv) Liver --> *C3, C6, C9*

759. Gene components of HLA class I includes -

a) A, B, C

b) DR

c) DQ

d) DP

Correct Answer - A
Ans. is 'a' i.e., A, B, C
. Class I HLA comprises A, B and C loci.

760. Antibody elevated in parasitic infection ?

a) IgA

b) IgE

c) IgG

d) IgM

Correct Answer - B
Ans. is 'b' i.e., **IgE**

761. Test for coliform count ?

a) Eijkman test

b) Casoni's test

c) Nitrate test

d) Urease test

Correct Answer - A
Ans. is 'a' i.e., Eijkman test

- Adler analysing presumptive coliform count, *E coli count is* cofirmed by other tests like Eijk **m** an **t test** and indole production.

762. True about interferon is:

a) It is a synthetic antiviral agent

b) Inhibits viral replication in cells

c) Is specific for particular virus

d) None

Correct Answer - B

Ans. (b) Inhibits viral replication in cells *Rt,11 itlii ilallarayl111 CO,* p p Iiii i tC,i :;r, p

- Interferon (host coded protein) has no direct action on viruses but inhibit viral replication by selectively inhibiting translation of viral m-RNA without affecting cellular m-RNA.
- IFN are not virus specific but species specific.
- It is of 3 types:

Type	Cell **source. Cell target**	**Biological** ctivity
IFN a (protein) or leukocyte IFN	All cells	All cells	Antiviral activity; stimulates T L.ell, macrophages **and NK cell** activity
IFN 13 (glycoprotein) or Fibroblast IFN	All cells	All cells	Direct antitumor effects Upregulates MHC class I antigen expression. Used therepeutically in viral and autoimmune disease
• *IFNy (glycoprotein) or immune IFN*	T cells NK	All cells	**Regulates macrophage and NK cells activation** Stimulates Ig secretion by B

	cells	cells Induction of class II histocompatibility antigens TH1 **T** cell differentiation

763. Schistosomiasis is an exmple of:

a) Meta-zoonoses

b) Cyclo-zoonoses

c) Direct-zoonoses

d) Sporo-zoonoses

Correct Answer - A
Ans. a. Meta-zoonoses

764. Which of the following organisms does not enters through abrasions in the skin -

a) E rhusiopathiae

b) E corrodens

c) C hominis

d) C violaceum

Correct Answer - C

Ans. is 'c' i.e., C. hominis

Bacteria circulate and multiply in blood ---> Septicemia

. Bacteria circulate in blood --> Bacteremia

. Toxins circulate in blood --> Toxemia

. Pus in blood —> Pyemia

- Eikenella corrodens (E. corrodens), chromobacterium violaceum (C. violaceum) and Eikenella corrodens (E. corrodens) enters the body through skin abrasions.
- A wide variety of microorganisms that reside on the skin and mucous membranes of the body, as well as those found in the environment, can cause skin and soft tissue infections.
- These organisms enter the body through breaks in the skin or mucous membranes, through wounds made by trauma or bites or as a complication of surgery or foreign-body implantation.

These organisms have been mentioned in following table :

Aerobic and facultative microorganisms	Anaerobic bacteria	Aerobic microorganisms from unusual, Vspecialized and zoonotic infections	Yeast

• Coagulase negative staphylococci • Staphylococcus aureus • Enterococcus spp. • Streptococcus viridans • Corynebacterium spp. • Bacillus cereus • E. coli • Serratia • Enterobacter • Proteus • Morganella • Pseudomonas • Acinetobactor	• Peptostreptococcus spp. • Clostridium spp. • Eubacterium limosum • Bacteroides fragilis • Prevotella spp. • Porphyromonas • Fusobacterium • Veillonella spp.	• Actinobacillus actinomycetemcomitans • Aeromonas spp. • Bacillus anthracis • Bergeyella zoohelcum • *Chromobacterium violaceum* • *Eikenella corrodens* • *Erysipalothrix rhusiopathiae* • Francisella tularensis • Haemophillus spp. • Kingella kingae • Pasteurella multocida • Streptobacillus moniliformis • Vibrio vulnificus	• Cand albicans • Cand krusei • Cand parapsil

765. 18 years old girl presents with watery diarrhea. Most likely causative agent -

a) Rota virus

b) V. cholerae

c) Salmonella

d) Shigella

Correct Answer - B

Ans. is 'b' i.e., V. cholerae

Amongst the given options Rotavirus and V. cholerae cause watery diarrhea.

Acute watery diarrha in children is usually bacterial in origin, most commonly due to enterotoxigenic E. coli (ETEC). V cholerae is also a common cause.

Rota virus is the most common cause of diarrhea in infant and children (the patient in question is adult).

766. 'Secrete of national health lies in the homes of people' statement by ?

a) Indira Gandhi

b) Abhraham lincon

c) Bhore

d) Florence Nightingale

Correct Answer - D
Ans. is 'd' i.e., Florence Nightingale [Ref Housing and planning review p. 35]
Florence Nighingale pointed out nearly a hundrade years ago, "the secret of national health lies in the homes of people".

767. Father of public health -

a) Cholera

b) Plague

c) Leptospirosis

d) Anthrox

Correct Answer - A
Ans. is 'a' i.e., Cholera
History of cholera
o Father of public health is a disease, not a person.
o *Father of public health is cholera.*
o John Snow (1813-1858) found the link between cholera and contaminated drinking water in 1854, using spot map.
o Robert Koch indified V. cholerae (1885).
Cholera morbus - Used in 19th & early 20th centuries for both non-epidemic cholera and other gastrointestinal diseases that resembled cholera.

768. Which agency monitors air quality in India ?

a) Central pollution control board

b) Central air quality board

c) Central public works dept

d) None

Correct Answer - A
Ans. is 'a' i.e., Central pollution control board
The National Air Quality Monitoring Programme, sponsored by the *Central Pollution Control Board (CPCB)* since 1990, has generated database over last 14 years in 10 major Indian cities.

769. Work sampling ?

a) Sampling done for individual work

b) Assessment of time spent by workers in work

c) Done in very short period

d) None

Correct Answer - B
Ans. is 'b' i.e., Assessment of time spent by workers in work
Work sampling is a technique used to investigate the proportion of total time devoted to the various activities that constitute a job or work situation.

770. Child protection scheme is under which ministry -

a) Ministry of health and family welfare

b) Ministry of Social welfare

c) Ministry of women and child development

d) Ministry of education

Correct Answer - C
Ans. is 'c' i.e., Ministry of women and child development
o In 2006 the Ministry of Women and Child Development (MWCD) proposed adoption of Integrated Child Protection Scheme (ICPS).
o In 2009 the central government take the scheme its approval and has begun the extensive task of providing children with a protective and safe environment to develop and florish.
o The purpose of the scheme is to provide for children in difficult circumstances, as well as to reduce the risks and vulnerabilities children have in various situations and actions that lead to abuse, neglect, exploitation, abondonment and separation of children.

771. School health checkup comes under -

a) Disrict hospital

b) PHC

c) CHC

d) School health committee

Correct Answer - D

Ans. is 'd' i.e., School health committee [Ref Park 22"^{d}/e p. 534, 535]

The school health committee (1961) in India recommended medical examination of children at the time of entry and thereafter every 4 years.

772. Web Causation of disease is most appropriate ?

a) Mostly applicable for common disease

b) Better for all the related factors associated with causation of disease

c) Epidemiological ratio

d) Helps to interrupt the risk of transmission

Correct Answer - B
Ans. is 'b' i.e., Better for all the related factors associated with causation of disease

Web of causation

o This model is ideally suited *in the study of chronic disease,* where the disease agent is often not known but is the outcome of interaction of multiple factors.
o The "web of causation" *considers all the predisposing factors of any type and their complex relationship with each other.*
o The causal web provides a model which shows a variety of possible interventions that could be taken which might reduce the occurrence of disease (e.g. MI)
o The web of causation does not imply that the disease cannot be controlled unless all the multiple causes or chains of causation or at least a number of them are appropriately controlled. This is not the case. Sometimes removal or elimination of just only one link or chain may be sufficient to control disease, provided that link is sufficiently important in the pathogenic process.
o Therefore, in a multifactorial event, individual factors are by no means all of the equal weight.

773. Iodized salt in iodine deficiency control programme is?

a) Primary prevention

b) Secondary prevention

c) Teriary prevention

d) None

Correct Answer - A
Ans. is 'a' i.e., Primary prevention
Fortification of food e.g. iodized salt is primary prevention.
Primary prevention has two main components:-
i) Health promotion
ii) Specific protection
Mode of the intervention of Primary prevention Health promotion
Specific protection

.. *Health education* 1. *Immunization*
2. Environmental modifications 2. *Use of specific nutrients iron and folic acid tablet*
3. *Nutritional intervention* 3. *Chemoprophylaxis*
4. *Life style and behavioral changes* 4. Protection against occupational Hazards
5. Protection against accident
6. Protection from carcinogens
7. *Avoidance of allergens*
8. Control of specific Hazards in general environment e.g. air pollution, noise control
9. *Control of consumer product quality and safety of food and drug*
0. Using a mosquito net
.. Contraception

774. Secondary prevention is applicable to

a) Causal factors

b) Early stage of disease

c) Late stage of disease

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Early stage of disease

- Primordial prevention → Before risk factor present.
- Primary prevention → Before onset of disease (risk factor present).
- Secondary prevention → In early stage of disease.
- Tertiary prevention → Late stage of disease.

775. DALE is replaced by ?

a) DALY

b) HALE

c) OALY

d) None

Correct Answer - B

Ans. is 'b' i.e., HALE [Ref Park 20th/e p. 24]

HALE (Health - Adjusted life expectancy) :- The name of the indicator used to measure healthy life expectancy has been changed from disability adjusted life expectancy (DALE) to health adjusted life expectancy (HALE).

HALE is based on the life expectancy at birth but includes and adjustment for time spent in poor health. It is most easily understood as the equivalent number of years in full health that a newborn can expect to live based on current rates of ill health and mortality.

776. Natural history of disease is studied with ?

a) Longitudinal studies

b) Cross-sectional studies

c) Both

d) None

Correct Answer - A

Ans. is 'a' i.e., Longitudinal studies

<u>Longitudinal studies</u>

- In this type of study, observations are repeated in the same population over a prolonged period using *follow up examinations.*
- *They are useful to*

1. *Study the natural history of the disease*
2. *For identifying risk factors of disease*
3. *For finding out the incidence rate or rate of recurrence of new cases of the disease.*

Note: Longitudinal studies are difficult to organize and more time consuming than cross-sectional studies.

777. Problem of bias is maximum with -

a) Cohort study

b) Case study

c) Case control study

d) Experimental study

Correct Answer - C
Ans. is 'c' i.e., Case control study

778. Berkesonian bias is a type of ?

a) Selection bias

b) Interviever bias

c) Information bias

d) Recell bias

Correct Answer - A
Ans. is 'a' i.e., Selection bias
Berksonian bias is a type of selection bias.
Bias
o It is any systemic error in the analysis of study that results in a mistaken estimate of an exposure's effect on the risk of disease.
o Mainly biases are of following types.
1. Selection bias
Surveillance/detection bias Referrel bias or volunteer bias Berksonian bias
Neyman survival bias Response bias
2. Information (Misclassification) bias
Reporting bias Interviewer bias
Recall bias Hawthorne bias (attention bias)
3. Confounding bias
Confounding is some times is referred to as a third major class of bias.

779. All of the following are characteristics of case control study except -

a) Quick results are obtained

b) Measures incidence rate

c) Proceeds from effect to cause

d) Inexpensive study

Correct Answer - B
Ans. is 'b' i.e., Measures incidence rate
o Incidence rate can not be measured by case-control study as denominator (population at risk is not available).

780. Best study for definitive cause of disease ?

a) Case-control

b) Cohort

c) Ecological

d) Cross-sectional

Correct Answer - B

Ans. is 'b' i.e., Cohort

Amongst the given options Cohort study is best to test the association between risk factor and disease.

Here are the different epidemiological studies with decreasing order of accuracy to test the association between risk factor and disease :-

- Systematic review and meta-analysis --> Overall most reliable
- Randomized controlled trials (controlled clinical trails) --> Most reliable individual study.
- Retrospective (Non-concurrent/historic) Cohort study.
- Prospective (concurrent) Cohort study.
- Case control study
- Cross-sectional study
- Ecological study

781. Suspected cause preceding the observed effect is an example for -

a) Temporal association

b) Consistency of association

c) Strength of association

d) Coherence of association

Correct Answer - A
Ans. is 'a' i.e., Temporal association
Temporal association
o It implies *cause preceds effect* or *effect follows cause, i.e.,* suspected cause preceding the observed effect.
o *It is the most important criteria for causal association*
o It is best established by concurrent cohort study.
Strength of association
o It implies how strongly exposure is associated with disease.
o It is determined by
i) Relative risk (In Cohort study) I Have been explained
ii) Odds ratio (In case-control study)
iii) Dose-response relationship With increasing level of exposure to the risk factor, on increasing ris in incidence is found.
iv) Cessation of exposure (Reversibility) —> Removal of possible cause reduces risk of disease.
Consistency of association
o The association is consistent if the results are replicated when studies in different settings and by different methods.
o For example, different studies in different settings have proved smoking as one of the cause for lung cancer —> Smoking has consistent association with lung cancer.

Coherence of association

o The causal association must be coherent (supported by) with relevant facts.

o For example : -

The death rates due to lung cancer increasing more rapidly in females comparison to males.

The relevant fact ---> This increasing rate is due to more recent adoption of cigarrete smoking by women.

782. Results of any study are better defined in ?

a) Cost effectiveness

b) Cost benefit

c) Both are same

d) None

Correct Answer - A

Ans. is 'a' i.e., Cost effectiveness [Ref. Park 22"^{d}le p. 814]

The study results can be evaluated by cost-benefit analysis and cost-effectiveness analysis.

In cost-benefit analysis all costs and benefits are evaluated in terms of money, i.e. economic benefits of the programme/ study are compared with the cost of programme. The main drawback with this technique is that the benefits in the health field canot always be expressed in monetary term. For example birth or death prevented, or illness avoided etc. Hence the scope of applying this method is rather vague.

Cost-effective analysis is more promising tool for application in the health field. It evaluates how best to spend a given amount of money to achieve specific goals, i.e. benefits are expressed in terms of results achieved, e.g. number of lives saved, or the number of days free from disease.

783. For calculation of incidence denominator is taken as?

a) Mid year population

b) Population at risk

c) Total number of cases

d) Total number of deaths

Correct Answer - B

Ans. is 'b' i.e., Population at risk

- Denominator for calculating incidence is population at risk

784. Which one of the following is not a special incidence rate-

a) Attack rate

b) Secondary attack rate

c) Hospital admission rate

d) Standardized mortality rate

Correct Answer - D
Ans. is 'd' i.e., Standardized mortality rate
Special incidence rates
i) Attack rate (case rate)
ii) Secondary attack rate
iii) Hospital admission rate

785. Attributable risk means

a) Fatality of a disease

b) Disease risk ratio between exposed and non-exposed

c) Risk difference between exposed and non-exposed

d) Communicability of a disease

Correct Answer - C
Ans. is 'c' i.e., Risk difference between exposed and non-exposed
-Attributable risk (AR) is the difference in incidence rates of disease or death between an exposed and non-exposed group.
- It is expressed in percentage and gives the extent to which the disease can be attributed to the exposure in a cohort study.

786. Proportional mortality rate is ?

a) Number of death due to a particular cause

b) Number of death during that year

c) Number of death in one month

d) None

Correct Answer - A

Ans. is 'a' i.e., Number of death due to a particular cause

<u>Proportional mortality rate (ratio)</u>

- Proportional mortality rate measures the proportion of total death due to specific cause or proportion of deaths in a particular age group.
- It is defined as *"number of deaths due to a particular cause (or in specific age group) per 100 total deaths".*
- It is the *'simplest measure of estimating the burden of disears'* in the community.
- It is a useful *'health Status indicator';* indicates magnitude of preventable mortality.
- It is used when population data is not available.
- It does not indicate the risk of members of population contracting or dying from the disease.

787. Name of mumps vaccine is -

a) Jeryl Lynn

b) Edmonshon zagreb

c) Schwatz

d) Moraten

Correct Answer - A
Ans. is 'a' i.e., Jeryl lynn
o Mumps vaccine strain is Jeryll Lynn strain.
o Other three strains are of measles vaccine.

788. Time between infection and maximum infectivity is known as?

a) Incubation period

b) Serial interval

c) Generation time

d) Communicable period

Correct Answer - C
Ans. is 'c' i.e., Generation time
Generation time
o *Interval between receipt of infection by host and maximal infectivity of the host.*
o Generation time is roughly equal to the incubation period.
Ref: PARK 22nd edition pg96

789. Transovarian transmission Is seen in which infection -

a) Plague

b) Guinea

c) Yellow fever

d) All

Correct Answer - C
Ans. is 'c' i.e.. Yellow fever

790. Transovarian transmission of infection occurs in -

a) Fleas

b) Ticks

c) Mosquitoes

d) b and c

Correct Answer - D
Ans. is 'b' i.e., Ticks; 'c' i.e., Mosquitoes

791. Chronic carrier state is not seen in all except *?*

a) Poliomyelitis

b) Measles

c) Malaria

d) Tetanus

Correct Answer - C
Ans. is 'c' i.e., Malaria

792. Following are examples of human "dead end" disease except -

a) Bubonic plague

b) Japanies ecephalitis

c) Hydatid disease

d) Leishmaniasis

Correct Answer - D
Ans. is 'd' i.e., Leishmaniasis
Dead and host
o A dead end host is an infected person from which infectious agents are not transmitted to other susceptible host or from which a parasite cannot escape to continue its life cycle.
o The diseases in which human acts as dead end host, i.e., dead and disease : ?
.. Japanies encephalitis 3.
Trichinosis 5. Bubonic plaque
?. Echynococcosis (hydatid disease) 4. Tetanus

793. Propagative cycle is seen in ?

a) Plague

b) Filaria

c) Malaria

d) All

Correct Answer - A
Ans. is 'a' i.e., Plague [Ref Park 22"/e p. 94]
Propagative → Plague bacilli in rat fleas
Cyclo-developmental → Micorfilaria in mosquito.
Cyclo-propagative → Malarial parasite in mosquito.

794. International disease surveillance is for *?*

a) Hepatitis

b) Polio

c) TB

d) Leprosy

Correct Answer - B
Ans. is 'b' i.e., Polio

795. Mass vaccination is ineffective in -

a) Measles

b) Polio

c) Tetanus

d) None

Correct Answer - D
Ans. is 'None'
o Mass vaccination is used in all the three given options.

796. If prevalence of a disease increases, what is true?

a) PPV increases

b) PPV decreases

c) No effect on PPV

d) PPV may increase or decrease

Correct Answer - A
Ans. is 'a' i.e., PPV increase

797. Screening procedure is best for Ca of -

a) Prostate

b) *Colon*

c) Gastric

d) None

Correct Answer - B
Ans. is 'b' i.e., Colon
o Two most important cancers, which can be prevented by screening are *carcinoma of colon and cervix.*

798. High sensitive -

a) Low false positive

b) Low false negative

c) Low true negative

d) Low true positive

Correct Answer - B
Ans. is 'b' i.e., Low False negative
True positive is directly related to sensitivity o False negative is inversely related to sensitivity
True negative is directly related to specificity o False positive is inversely related to specificity
o *If a test has high sensitivity* —> more true positive, less false negative, and also more false positive. o *If a test has high specificity* —> more true negative, less false positive and also more false negative.

799. Most reliable test for screening of diabetes mellitus?

a) Random sugar

b) Fasting sugar

c) Glucose tolerance test

d) Urine sugar

Correct Answer - B
Ans. is 'b' i.e., Fasting sugar
"The best screening test for diabetes, the fasting plasma glucose (FPG), is also a component of gnostic testing" diabetesjournals.org
o The fasting plasma glucose test and the 75g oral glucose tolerance test (GTT) are both suitable tests for screening of diabetes.
o However, the FPG test is preferred in clinical settings because it is easier and faster to perform, more convenient and acceptable to patients, and less expensive.
"Fasting plasma glucose level is the most reliable and convenient test" Problem oriented patient management

800. Blood screening is not done for ?

a) HIV

b) HBV

c) EBV

d) HCV

Correct Answer - C

Ans. is 'c' i.e.,EBV

Screening recommended in all countries	**Selective screening in some countries**
HIV	Malaria
HBV	HTLV
HCV	CMV
Syphilis	Chagas disease

801. To eradicate measles the percentage of population to be vaccinated is at least.....%

a) 70

b) 80

c) 85

d) 95

Correct Answer - D
95

802. In measeles vaccine can be given within-

a) 3 months

b) 5 months

c) 7 months

d) 6 months

Correct Answer - D
Ans. is 'd' i.e., 6th months
o The best age for measles vaccination is 9 months.
o The *age can be lowered to 6 months* if there is measles outbreak in the community. For infants immunized between 6 months and 9 months of age, a second dose should be administered as soon as possible after the child reaches the age of 9 months provided that at least 4 weeks have elapsed since the last dose.

803. Measles vaccination is given at -

a) 9 months

b) At birth

c) 4 weeks

d) 8 weeks

Correct Answer - A
Ans. is 'a' i.e., 9 months
o The WHO expanded programme on immunization recommends immunization at 9 months of age.
o Now, second dose of measles is also given at 16-24 months in National Immunization Schedule.

804. Incubation period of swine flu -

a) 1-3 days

b) 2-3 weeks

c) 10-15 days

d) 5 weeks

Correct Answer - A
Ans. is 'a' i.e., 1-3 days
Swine flu
o Swine flu, also called swine influenza, or pig influenza, is caused by influenza virus.
o It is mainly occurs in swines (pigs) and occasionally transmitted to human.
o It is usually caused by influenza virus type A (H1-N1).
o *Incubation period is about 1-3 days* and the symptoms of swine flu in humans are similar to most influenza infections, e.g. fever, cough, rhinorrhea, fatigue and headache.

805. **As per RNTCP guidelines, Multi drug resistance (MDR) TB is defined as resistance to:**

a) Rifampicin

b) Rifampicin and isoniazide

c) Rifampicin, isoniazide and ethambutol

d) None of the above

Correct Answer - B
Confirmed MDR-TB case: MDR-TB suspect is one who is sputum culture positive and whose TB is due to Mycobacterium tuberculosis that are resistant in-vitro to at least **isoniazid and rifampicin** (the culture and DST result being from an RNTCP accredited laboratory).
Ref: Park 21st edition, page 178.
http://health.bih.nic.in/Docs/Guidelines-DOTS-Plus.pdf.

806. Why a TB patient is recommend a regimen of 4 drugs on 1st visit -

a) To avoid emergence of persistors

b) To avoid side effects

c) To cure early

d) None

Correct Answer - A
Ans. is 'a' i.e., To avoid emergence of persistors
Two phase chemotheraphv
o There are two phase of treatment of tuberculosis
i) Intensive phase
This is short phase in the early course of treatment and lasts for 1-3 months.
Three or more drugs are given to kill as many bacilli as possible, which *prevents emergence of persisters.*
The risk of relapse is also lessened. Continuation phase

It is aimed at sterilizing the smaller number of dormant or persisting bacilli.

807. TB multidrug regimen is given to-

a) Prevent resistance

b) Broad spectrum

c) Prevent side effects

d) None

Correct Answer - A
Ans. is 'a' i.e., Prevent resistance
o Multidrug treatment in TB is given to ?
i) Prevent emergence of persisters
ii) Prevent relapse
iii) Prevent emergence of resistance
iv) shorten the duration of treatment

808. 4 drugs in AKT used because -

a) Decrease in resistance by mutation

b) Decrease in resistance by conjugation

c) To cure disease early

d) None

Correct Answer - A
Ans. is 'a' i.e., Decrease in resistance by mutation
o Most common method for production of resistance against ATT is mutation.
o Multidrug treatment prevents emergence of resistance. Thus, multidrug treatment prevent emergence of resistance due to mutation.

809. Chicken pox vaccine is -

a) Live vaccine

b) Killed vaccine

c) Conjugated vaccine

d) None

Correct Answer - A
Ans. is 'a' i.e., Live vaccine
<u>Prevention of chickenpox</u>
o For prevention of chickenpox following are used?
i) **Varicella zoster immunoglobulin (VZIG)**
VZIG is given within 72 hours of exposure in exposed susceptible individuals.
It is given intramuscular with a repeat dose in 3 weeks.
Because VZIG bind to varicella vaccine, the two should not be given concomitantly.
ii) **Vaccine**
Varicella vaccine is *live attenuated vaccine* and is recommended for children between 12-18 months of age.
Efficacy of vaccine is 90 - 95% and duration of immunity is probably 10 years.
Two doses are recommended in person older than 12 years of age.

810. Amount of diphtheria toxoid in DT is ?

a) 5 Lf

b) 10 Lf

c) 15 Lf

d) 25 Lf

Correct Answer - D

Ans. is 'd' i.e., 25 Lf [Ref. Park 22"^{d}le p. 153]

Oridinary (Pediatric) DPT/DT vaccines contain 25 Lf of diphtheria toxin.

For immunizing adults and older children (>12 years), dT is used which contains 2 Lf of diphtheria toxin.

DPT vaccine

- It contains components for immunization against three diseases, i.e., toxoid of diphtheria and tetanus, and killed B. pertussis. Pertussis component enhances the potency of diphtheria toxoid.
- Aluminium salts (hydroxide or phosphate) are used as adjuvant to increase immunogenicity. Thiomersal is used as preservative.
- Usual storage temperature for DPT vaccine in cold chain is +2 to +8°C, stored in refrigerator. It should never be stored in deep freezer (should not be frozen) and if it gets frozen accidently, vaccine should be discarded.
- Exposure to sunlight should be avoided. Open vials which have not been fully used should be discarded at the end of session.
- Vaccine is given by intramuscular route in the middle third of anterolateral aspect of thigh.
- Optimum age to start DPT vaccination is 6 weeks after birth.
- Total three doses are given in primarly immunization with an interval of 4 weeks between three doses. First booster is given at 16-24

months with second booster at 5-6 years.

811. Bivalent meningococcal vaccine is ?

a) A Y

b) A C

c) C y

d) A W-I35

Correct Answer - B
Ans. is 'b' i.e., A C
Two type of meningococcal vaccine develop

- Unconjugated polysaccharide vaccine.
- Conjugated group C vaccine.

Polysaccharide vaccines

- Internationally marketed meningococcal polysaccharide vaccines are o Bivalent (A and C),
- Trivalent (A, C and W-135)
- Tetravalent (A, C, Y and W-135).
- The vaccines are purified, heat-stable, lyophilized capsular polysaccharides from meningococci of the respective serogroups.
- A protective antibody response occurs within 10 days of vaccination.
- In schoolchildren and adults, one dose of these polysaccharide vaccines appears to provide protection for at least 3 years, but in children under 4 years of age the levels of specific antibodies decline rapidly after 2-3 years.

812. According to EVINCE fast breathing in 5 mth child is defined as -

a) >30/min

b) 40

c) 50

d) 60

Correct Answer - C
Ans. is 'c' i.e., 50

813. 1955 Hepatitis outbreak in Delhi ?

a) A

b) B

c) C

d) E

Correct Answer - D
Ans. is 'd' i.e., E [Ref Internet]
Hepatitis E was first documented in New Delhi in 1955 when 29000 cases of icteric hepatitis occured.

814. Which is cholera vaccine -

a) Ty21 A

b) HGD -103

c) WC-rBS

d) None

Correct Answer - C
Ans. is 'c' i.e., WC-r BS

Cholera Vaccine

Killed vaccines
Dukoral (WC-rBS)
Sanchol and mORC VAX

815. Trivalent oral polio vaccine contains, type 3 virus -

a) 100,000 TCID 50

b) 200,000 TCID 50

c) 300,000 TCID 50

d) 400,000 TCID 50

Correct Answer - C

Ans. is 'c' i.e., 300,000 TCID 50

Oral (sabin) polio vaccine

- It contains live attenuated viruss (type 1, 2 and 3) grown in primary monkey kidney or human diploid cell culture.
  o The vaccine contains :-
  i) Over 300,000 TCID 50 of type 1 poliovirus
  ii) Over 100,000 TCID 50 of type 2 poliovirus
  iii) Over 300,000 TCID 50 of type 3 poliovirus o Dose 2 drop (0.1 ml)
- Schedule in National Immunization Programme of India.

Dose	**Age**
OPV-0 (Zero dose)	At birth
OPV-1	6 weeks
OPV-2	10 weeks
OPV-3	14 weeks
OPV-B (Booster dose)	16-24 months

o *Development of immunity* --> OPV induces local intestinal immunity by production of secretory IgA as well as humoral immunity by inducing production of serum antibodies (IgG). So, it gives protection from paralysis and also prevents infection of the gut by wild viruses.

816. ORS contains 75 mEq/l-

a) Sodium

b) Potassium

c) Glucose

d) Chloride

Correct Answer - A
Ans. is 'a' i.e., Sodium

Glucose	**should at least equal that of sodium but should not exceed 111 mmol/l**
Sodium	**should be within the range of 60-90 mEq/l**
Potassium	**should be within the range of 15-25 mEq/l**
Citrate	**should be within the range of 8-12 mmol/l**
Chloride	**should be within the range of 50-80 mEq/l**

817. ORS new osmolarity is -

a) 270

b) 245

c) 290

d) 310

Correct Answer - B
Ans. is 'b' i.e., 245
o Osmolarity of new ORS (reduced osmolarity ORS) is 245 mmol/litre.

818. Prophaylaxis for malaria not used-

a) Doxycycline

b) Artesunate

c) Chloroquine

d) Mefloquine

Correct Answer - B
Ans. is 'b' i.e., Artesunate
o Drugs used for prophylaxis of malaria are *chloroquine,* proguanil, *doxycycline, mefloquine* and hydroxychloroquine.

819. Yellow fever aedes agypti index should be *?*

a) <*1%*

b) < *5%*

c) <*10%*

d) < 20%

Correct Answer - A
Ans. is 'a' i.e., < 1%

820. Which is the main vector of Dengue ?

a) A. aegypti

b) A schleri

c) Culex

d) Anopheles

Correct Answer - A
Ans. is 'a' i.e., A. aegypti [Ref Park 22"/e p. 225]
Dengue fever is caused by arboviruses (at least 4 serotypes have been recognized)
It is transmitted by Aedes (Aedes aegypti is the main vector).
The reservoir of infection is both man and mosquito.
The transmission cycle is Man-mosquito-man
Dengue fever occurs both epidemically and endemically. Epidemics starts in rainy season and are usually explosive.
Aedes mosquito becomes infective by feeding on a patient from the day before onset to the 5^{th} day of illness

821. Chemoprohylaxis of chloroquine includes -

a) 300 mg BD/week

b) 600 mg OD/week

c) 600 mg/week

d) 300 mg OD/week

Correct Answer - D
Ans. is `d' i.e., 300 mg OD/week

Drug	Dose for chemoprophylaxis
Chloroquine	300 mg (3 tablets of 100 mg or 2 tablets of 150 mg) once a week or 100 mg/day for 6 day every week
Proguanil	400 mg per day (2 tablets of 200 mg)
Mefloquine	250 mg once a week
Doxycycline	100 mg per day.

822. Epidemic typhus cause & vector -

a) Rickettessiae prowazki & Louse

b) R. typhi & mite

c) R. conorii & tick

d) R. akari & mite

Correct Answer - A
Ans. is 'a' i.e., Rickettessiae prowazki & Louse

823. Vector of scrub typhus in man *?*

a) O. tsutsugamushi

b) Leptotrombidium deliense

c) Lice

d) Pediculous humanus

Correct Answer - B
Ans. is 'b' i.e., Leptotrombidium deliense
o For scrub typhus :-

- *Causative agent R. tsutsugamushi*
- *Vector trombiculid mite (Leptotrombidium delinese and L. akamushi)*

824. "Multibacillary" is *a* spectrum of disease, seen in-

a) Leprosy

b) TB

c) Tetanus

d) Trachoma

Correct Answer - A
Ans. is 'a' i.e., Leprosy

825. 2 yrs duration in terms of leprosy is with regard to -

a) Rx of paucibacillary leprosy

b) Rx of multibacillary leprosy

c) Post Rx surveillance of paucibacillary leprosy

d) Post Rx surveillance of multibacillary leprosy

Correct Answer - C
Ans. is 'c' i.e., Post Rx surveillance of paucibacillary leprosy

826. Which virus is used to produce rabies vaccine *?*

a) Wild

b) Street

c) Fixed

d) Live Attenuated

Correct Answer - C
Ans. is 'c' i.e., Fixed
o There are two strains of rabies virus : *?*
i) *Street virus* - This the virus, responsible for natural rabies and is isolated from natural human or animal infection.
ii) *Fixed virus* - It is isolated after several serial intracerebral passage in rabbit. *It is used to prepare rabies vaccine.*

827. Second most common STD after gonococcus ?

a) Chylamydia

b) HSV

c) HIV

d) Syphilis

Correct Answer - A

Ans. is 'a' i.e., Chlamydia [Ref Park 21^{51}/e p. 304]

Five classical STDs are syphilis (T. pallidum), gonorrhoea (N. gonorrhoeae), chanchroid (H. ducreyi), lymphogranuloma venerum (chlamydia trachomatis), and donovanosis (calymmatobacterium granulomatosis).

Most common STD in India is herpes genitalis (20%) followed by chancroid (11%), viral warts/HPV (11%), syphilis (11%) and gonorrhoea (9%).

Overall (in world) most common STD is chlamydia followed by gonorrhoea.

828. Chandlers index for Hookworm, when it is health problem ?

a) > 300

b) > 200

c) > 100

d) > 50

Correct Answer - A
Ans. is 'a' i.e., > 300 [Ref Park 21"/e p. 221]
Below 200 → Hookworm infection is not much of significance
200 - 250 → Potential danger
250 - 300 -- Minor public health problem
Above 300 → Important public health problem

829. Which of the following is a zoonotic disease *?*

a) Hydatid cyst

b) Malaria

c) Filariasis

d) dengue fever

Correct Answer - A
Ans. is 'a' i.e., Hydatid cyst
Important zoonoses
I. *Bacterial –4* Anthrax, Brucellosis, Ornithoses, Q-fever, Leptospirosis, TB, Plague, Tularemia, Salmonellosis.
2. Viral --> Cowpox, Monkeypox, Easternequine, encephalitis, Ross river fever, Yellow fever, Japanese encephalitis, Lassa fever, Rabies.
3. Protozoal ---> Leishmaniasis, Toxoplasmosis, Trypanosomiasis, Babesiosis.
4. Helminthic ----> Clonorchiasis, Fasciolopsis, Schistosomiasis, Echinococus (hydatid disease), Taeniasis, Trichinellosis.

830. HIV post exposure prophylaxis should be started within?

a) 1-2 hrs

b) 14 hrs

c) 18 hrs

d) 72 hrs

Correct Answer - A
Ans. is 'a' i.e., 1-2 hrs
Anti-retroviral drug for post-exposure prophylaxis should be initiated as soon as possible after the exposure within the first few hours and no later than 72 hours.
So, the best answer here is 1-2 hours (first few hours).

831. HIV prevalence can be assessed by-

a) Sentinel surveillance

b) Active

c) Passive

d) Register

Correct Answer - A
Ans. is 'a' i.e., Sentinel surveillance
o Sentinel surveillance in India is done in *national AIDS control programme.*

832. Most common cancer in men is

a) Bladder cancer

b) Colorectal cancer

c) Prostate cancer

d) Oral cancer

Correct Answer - C
Answer- C. Prostate cancer
Cancers in males in India: Lip / oralcavity > Prostate > Colorectum > Pharynx (other than nssopharynx) > Larynx

- Lung **cancer** was the **most common cancer in men** worldwide, contributing 15.5% of the total number of new cases diagnosed in 2018.
- The top three – lung, prostate and colorectal **cancers** – contributed 44.4% of all **cancers** (excluding non-melanoma skin **cancer**).

833. Which index of obesity does not include height?

a) BMI

b) Ponderal's index

c) Broca's index

d) Corpulence index

Correct Answer - D

Ans. is i.e., D. Corpulence index [Ref Park 22nd le p. 369, 370]

Different indices use to determine obesity are

i) Body mass index (Qetelet's index)

- It is used internationally as reference standard for assessing the prevalence of obesity.
- It is dependent both on height and weight (has been explained earlier).

ii) Ponderal index

- It is dependent both on height and weight.
- It is defined as height (cm) divided by cube root of weight (kg).

iii) Broca indexà deal weight = Height (cms) - 100

iv) Corpulence indexà It is dependent only on weight (height independent. It should be 1.2.

834. Which of the following studies have given coronary risk factor ?

a) Framingham

b) Stanford study

c) North Kerala

d) MONICA

Correct Answer - A

Ans. is 'a' i.e.,Framingham *[Ref Park 22"d ie* p. *342]*

Option a, b & c all three are risk factor intervention trials. However, option a is the best answer *:?*

- *"*Since 1951, one of the best known large prospective studies, the Framingham study, has played a major role in establishing the nature of CHD risk factors and their relative importance.
- Standford-three community study .→ To determine whether community **health education** can reduce the risk of cardiovascular disease, this study was undertaken in 1972.
- The North Kerelia Project: → This is a **multiple risk factor intervention** trial establish the nature of CHD risk factors and their relative importance. Largest prospective study which started since 1951.

835. Nicotine responsible for oral cancer is ?

a) 10%

b) 40%

c) 90%

d) 60%

Correct Answer - C
Ans. is 'c' i.e., 90% *[Ref Park 22"/e* p. *358]*
Approximately 90% of oral cancers in South East Asia are linked to tobacco chewing and tobacco smoking" -- Park

836. All of the following are given global prominence in the VISION 2020 goal, expect:

a) Refractive errors

b) Cataract

c) Trachoma

d) Glaucoma

Correct Answer - D
Ans. Glaucoma

837. For Asian population B.M.I. true is ?

a) Different from international values to define obesity

b) Increased morbidity at lower values

c) Increased morbidity at higher values

d) Obesity is > 25 kg/m2

Correct Answer - B

Ans. is 'b' i.e., Increased morbidity at lower values *[Ref* WHO *expert consultation]*

A WHO expert consulation addressed the debate about interpretation of recommended body-mass index (BMI) cut-off points for determining overweight and obesity in Asian populations, and considered whether population specific cut-off points for BMI are necessary.

They reviewed scientific evidence that suggests that Asian populations have different associations between BMI, percentage of body fat and health risks than do European population.

The consultation concluded that the proportion of Asian population with a high risk of type 2 diabetes and cardiovascular disease is substantial at BMI, lower than existing WHO cut-off points for overweight (25mg/kg^2). And Asians generally have a higher percentage of body fat in comparison to white people of that same age, sex and BMI.

However, available data do not necessarily indicate a clear BMI cut-off part for all Asians for overweight or obesity.

The cut-off point for observed risk varies from 22 kg/m^2 to 25 kg/m^2 in different Asian population, for high risk it varies from 26 kg/m^2 to 31 kg/m2.

For many Asian populations, additiond trigger points for public

health action were identified as -

1. 18.5 kg/m^2 → 4 Underweight
2. 18.5 - 23 kg/m^2 → Increased but acceptable risk
3. 23 - 27.5 kg/m^2 → Increased risk
4. 27.5 kg/m^2 → Higher high risk

838. Which of the following statements about 'Late Expanding Phase of Demographic Cycle' is TRUE?

a) Birth Rate is lower than Death Rate

b) High Death Rate and High Birth Rate

c) Death Rate declines more than Birth Rate

d) Death Rate begins to decline while Birth Rate remains unchanged

Correct Answer - C
In late expanding phase of demographic cycle death rates declines faster than the birth rate and there is a steady decrease in the demographic gap.
In this state population grow at a steadily decreasing rate.
Most of the developing countries are now at early expanding and late expanding stages of demographic cycle.

Ref: Park's Textbook of Preventive and Social Medicine By K. Park, 19th Edition, Page 379; Foundations of Community Medicine By Dhaar, 2nd Edition, Page 667

839. Not true about population pyramid ?

a) India has broad base

b) India has narrow base

c) India has narrow apex

d) Developing countries have bulge in the center

Correct Answer - B
Ans. is 'b' i.e., India has narrow base
In countries with high birth rates as ours, population pyramid is broad based conical (narrow apex) because of high birth rate and tapering of population with increase in age.
The pyramid of developing country (e.g. India) has a broad base and a tapering top.
In developed countries, the pyramid generally shows a bulge in the middle and has a narrower base (as in figure given in the question).

840. Net reproduction rate is ?

a) Number of live births per 1000 mid-year population

b) Number of live birth per 1000 women of child bearing age

c) Number of daughters a newborn girl will have during life time

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Number of daughters a newborn girl will have during life time

Net reproduction rate

Net reproductive rate is defined as

"The no. of daughters a new born girl will bear during her lifetime assuming fixed age specific fertility and mortality rates"

- It is the only fertility related statistics which also takes mortality rates into consideration.
- NRR of one is equivalent to attaining approximately *the two child norms.*
- Goal of NRR=1 can be achieved only *if atleast 60%* of the eligible couples* are effectively practicing family planning.

841. Homes where children are placed under the care of doctors and psychiatrists are called -

a) Foster homes

b) Borstals

c) Remand homes

d) Child guidance clinics

Correct Answer - C
Ans. is 'c' i.e., Remand homes
Child placement :
o *Orphanages :* For children who have no home or cannot be taken care of by their parents.
o *Foster Homes :* Several types of facilities for rearing children other than in natural families.
o *Adoption :* Legal adoption confers upon child and the adoptive parents, rights and responsibilities similar to that of natural parents.
o *Remand Homes :* Child is placed under the care of doctors, psychiatrists and other trained personnel to improve the mental and physical well being of the child.

842. Mean birth weight in India -

a) 2.0 - 2.4 kg

b) 2.4 - 2.5 kg

c) 2.5 - 2.9 kg

d) > 3.0 kg

Correct Answer - C
Ans. is 'c' i.e., 2.5 - 2.9 kg
Mean birth weight in Different parts of the world Region
Mean birth weight
North America, Western Europe, Australia
3.5 - 3.6 kg
Eastern Europe 3.1 - 3.3 kg
Africa and East Asia 2.9 - 3.1 kg
South Asian countries 2.7 kg
o In India, mean birth weight ranges from 24.9 kg to 28.8 kg.

843. Highest funding for reproductive health is by -

a) UNFPA

b) UNICEF

c) ILO

d) None

Correct Answer - A
Ans. is 'a' i.e., UNFPA *[Ref Maternal health fifth report session 2007-2008]*
UNFPA works with a range of partners to promote reproductive health in India.
It pools a significant proportion of its country programme resources in the reproductive and child health II (RCH II) programme, aimed at reducing maternal mortality and child mortality, as well as provision of range of contraceptive services.
UNFPA also delivers technical assistance for effective implementation of RCH-II programme at the national as well as state level particularly in the state of Rajasthan, M.P. Maharashtra, Orrisa and Bihar.

844. Most common method of sterilisation practised in India ?

a) Female sterilization

b) Male sterilization

c) Both

d) None

Correct Answer - A
Ans. is 'a' i.e., Female sterilization *[Ref Park 22"/e p. 454]*
<u>During 2010-2011</u>

- Total sterilization - 5.0 million
- Female sterilization (tubectomy) 4.78 million
- Male sterilization (vasectomy) 0. 219 million

845. Life span of cut380a -

a) 10 yrs

b) 20 yrs

c) 1 yrs

d) None

Correct Answer - A
Ans. is 'a' i.e., 10 years

846. Which of the following has LEAST pregnancy failure rate :

a) OCP

b) IUCD

c) Diaphragm

d) Condom

Correct Answer - A
OCP

847. Which is the least common cause among these of infant mortality in India -

a) Infections

b) Prematurity

c) Birth injuries

d) Congenital malformations

Correct Answer - C
Ans. is 'c' i.e., Birth injuries

848. MCH care is assessed by -

a) Death rate

b) Birth rate

c) Maternal mortality rate

d) Anemia in mother

Correct Answer - C
Ans. is 'c' i.e., Maternal mortality rate
Important MCH indicators
1. Maternal mortality rate
2. Mortality in infancy and childhood
   a) Perinatal mortality rate
   b) Neonatal mortality rate
   c) Post - neonatal mortality rate
   d) Infant mortality rate
   e) 1-4 year mortility rate
   f) Under 5 mortality rate
   g) Child survival rate

849. In normal delivery, breast feeding should be started?

a) *6* hour after delivary

b) 2 hour after delivary

c) 4 hour after delivary

d) None

Correct Answer - D
Ans is d None
o *Breast feeding should be initiated within 30 min. of a normal vaginal delivery.*
o *Breast feeding should be initiated within 4 hrs of delivery by caesarian section.*

850. Best indicator of availability,utilisation & effectiveness of health services-

a) IMR

b) MMR

c) Hospital bed OCR

d) DALY

Correct Answer - A
Ans. is 'a' i.e., IMR

851. Perinatal mortality includes deaths-

a) After 28 weeks of gestation

b) First 7 days after birth

c) Both

d) From period of viability

Correct Answer - C
Ans. is 'c' i.e., Both

852. Colostrums has in compared to normal milk *?*

a) Decreased K

b) Decreased Na

c) Increased proteins

d) Increased calories

Correct Answer - C
Ans. is 'c' i.e., Increased proteins

853. Maternal mortality is maximum in which period

a) Antepartum

b) Peripartum

c) Postpartum

d) None

Correct Answer - B
Ans. is 'b' i.e., Peripartum
o *Maternal death mostly occur from the third trimester to the first week after birth.* Studies show that mortality risks for mothers are particularly elevated in the first two days after birth.

854. Energy requirement in late pregnancy -

a) 2500 cal

b) 1400 cal

c) 1000 cal

d) 1000 cal

Correct Answer - A
Ans. is 'a' i.e., 2500 Cal

855. 'Vitamin A requirement in infant is-

a) 350 g

b) 600 g

c) 800 g

d) 1000 g

Correct Answer - A
Ans. is 'a' i.e., 350 g

856. Adult non-pregnant female requires, Calcium per day -

a) 400 mg

b) 600 mg

c) 800 mg

d) 1000 mg

Correct Answer - B
Ans. is 'b' i.e., 600 mg
o Adult non-pregnant female requires 600 mg calcium per day.

857. Calcium requirement above the normal during the first six month of lactation is -

a) 400Mgiday

b) 550mg/day

c) 600mg/day

d) 750mg/day

Correct Answer - C
Ans. is 'c' i.e., 600 mg

858. Iodine RDA is -

a) 300 microgram

b) 500 microgram

c) 150 microgram

d) 50 microgram

Correct Answer - C
Ans. is `c" i.e., 150 microgratn
o The RDA of iodine for adults is 150 microgram.

859. Iodine comes in iodine salt. Req uirm en t at production and consumer level respectively -

a) 20 & 10 PPNI

b) 30 & 10 PPM

c) 30& 15 PPM

d) 30 & 20 PPM

Correct Answer - C
Ans. is "c' i.e., 30 & 15 PPM

860. Bitot's spot prevalence as public health problem -

a) > 1%

b) > 2%

c) > 0.5%

d) None

Correct Answer - C

Ans. is i.e., c. > 0.5% *[Ref Park 22"d/e p. 571]*

Night blindness

Bitot's spots	> 0.5%
Corneal xerosis/corneal ulceration/keratomalacia	> 0.01%
Corneal ulcer	> 0.05%
Serum retinol (less than 10 mcg/dl)	> 5%

861. Jowar is Pellogerogenic due to excess of -

a) Leucine

b) Lysine

c) Tryptophan

d) Methioninc

Correct Answer - A
Ans. is 'a' i.e., Leucine
o Similar to maize, *Jowar* also Contains excess of *leucine.*
o Leucine interferes with conversion of tryptophan to niacin.
o Pellagra has been reported in India in *Telangana area of Andhra Pradesh* because of Sower (Sorghum vulgare) consumption.

862. Toxin responsible for epidemic dropsy: *AIIMS 07; UP 09; PGI 11*

a) BOAA

b) Aflatoxin

c) Sanguinarine

d) Pyrrozolidine

Correct Answer - C
Ans. Sanguinarine

863. Maximum linolenic acid is present in ?

a) Coconut oil

b) Soyabean oil

c) Groundnut oil

d) S afflower oil

Correct Answer - D
Ans. is 'd' i.e., Safflower oil *[Ref Park 22"d /e p. 566]*
The richest source of linoleic acid is safflower oil. Sources of linoleic acid in decreasing order are safflower oil > cornoil > Sunflower oil > Soyabean oil > Sesame oil > ground nut oil.

864. The heart to the activated sludge process is *?*

a) Primary sedimentation tank

b) Sludge digester

c) Aeration tank

d) Final settling tank

Correct Answer - C
Ans. is *'c' i.e.,* Aeration tank
o The heart of the activated sludge process is aeration tank.

865. Thickness of lead apron to prevent radiation:

a) 1 mm

b) 3 mm

c) 0.5 mm

d) 7 mm

Correct Answer - C
Ans. C. 0.5 mm
"It is recommended that for general purpose radiography the minimal thickness of lead equivalent in the protective apparel should be 0.5mm."
- Textbook of Radiology Physics p. 39
Lead apron of 0.5mm thickness reduce intensity of scattered X-rays by over 90%.

866. Daly requirment of vitamin K ?

a) 3 mg/kg

b) 0.3 mg/kg

c) 0.03 mg/kg

d) 1 mg/kg

Correct Answer - C
Ans. is 'c' i.e., 0.03 mg/kg *[Ref. Park 22"d/e* p. *572]*
Vitamin A→ 600 mcg retinol
Vitamin B_7 (Thiamine)--> 0.5 mg per 1000 Kcal of energy intake
Vitamin B, (Riboflavin) → 0.6 mg per 1000 Kcal of energy intake
Vitamin B, (Niacin) → 6.0 mg per 1000 Kcal of energy intake
Vitamin 13_5 (Pantothenic Acid) → 10 mg
Vitamin B_6 (Pyridoxine) →2 mg
Vitamin B, (Folic Acid) →200 mcg
Vitamin B12(Cobalamin) →1 mcg
Vitamin D 100 IU (2.5 mcg calciferol)
Vitamin E (Tocopherol) ⇒ → 0.8 mg per gm of essential fatty acids
Vitamin K → 0.03 mg per kg

867. Avidin has affinity for ?

a) Folic acid

b) Thiamine

c) Biotin

d) Riboflavin

Correct Answer - C
Ans. is 'c' i.e., Biotin *[Ref. Harper 29^{i}Ve* p. 539]
People who eat abnormally large amount of uncooked egg white may have biotin deficiency because it contains avidin, a protein that binds biotin and prevents its absorption

868. Argemain oil contamination of mustard oil can be detected by ?

a) Phosphatase test

b) Nitric acid test

c) Coliform cunel

d) Methylene blue test

Correct Answer - B

Ans. is 'b' i.e., Nitric acid test *[Ref. Park 22"d/e p. 610]*

Detection of Argemone oil :

1. Nitric acid test: brown orange red colour/ring shows it is present minimum concentration of Argemone oil required is about 0.2%.
2. Paper chromatography test - The most sensitive test

869. Iodine deficiency control programme *?*

a) Health education

b) Water testing

c) Fortification of salt

d) None

Correct Answer - C
Ans. is 'c' i.e., Fortification of salt
Iodized salt (salt fortified with iodine) is most economical, convenient and effective means of mass prophylaxis in endemic area.

870. Amount of proteins in human milk (in gms):
September 2007

a) 1.1

b) 2.2

c) 3.3

d) 4.4

Correct Answer - A
Ans. A: 1.1
Each 100 grams of breast milk yields approximately:

- 65 Kilocalories
- 88 g water
- 7.4 g carbohydrates (primarily lactose)
- 3.4 g fat
- 1.1 g protein

871. It waste contain toxic substances, organic load is measured by ?

a) Biological oxygen demand

b) Chemical oxygen demand

c) Suspended solid

d) None

Correct Answer - B

Ans. is 'b' i.e., Chemical oxygen demand *[Ref Park 22"d/e p. 708]*

" The strength of sewage is expressed in terms of :

1. Biochemical oxygen demand
2. Chemical oxygen demands
3. Suspended solids demand

Biochemical Oxygen demand

- It is the most important test done on sewage. It is defined as the amount of oxygen absorbed by a sample of sewage during a specified period, generally 5 days, at a specified temperature, generally 20 deg. **C,** for the aerobic destruction or use of organic matter by living organisms. BOD value ranges from about I mg per litre for natural waters to about 300 mg per litre for untreated domestic sewage. If the BOD is 300 mg/1 and above, sewage is said to be strong; if it is 100 mg/I, it is said to be weak."

Chemical oxygen demand (COD)

- The COD measures the oxygen equivalent of that portion of the organic matter in a sample which is susceptible to oxidation by a strong chemical oxidiser. If wastes contain toxic subsances, COD may be the only method for determining the organic load.

Suspended solids

- If the amount of suspended solids is 100 mg/1, the sewage is said to

be weak, if the amount is 500 mg/dl the sewage is said to be strong

872. Fenthion is ?

a) Space spray

b) Residual spray

c) Stomach poison

d) Fumgant

Correct Answer - A

Ans. is 'a' i.e., Space spray *[Ref Park 22"d le p. 727]*

Residual sprapy

- In residual spray, spraying of houses with residual insectisides is done.
- Residual insectisides remains active over extended periods i.e., they have residual action even after the time of spray.
- Commonly used residual insectisides are → Malathion, DDT, Lindane, propoxure (OMS-33)

Space spray

- Space sprays are those where the insecticidal formation is sprayed into the atmosphere in the form of a mist or fog to kill insect.
- Action is short lived and temporary since there is no. residual action.
- The most commonly used space spray insecticide is Pyrethrum.
- Now residual insectisides are also being used as residual spray by new equipment for ultra-low volume (ULV) space spraying. Melathion and fenthion are used for this purpose.

873. Not safe disposal but gelid for soil building -

a) Incineration

b) Controlled tipping

c) Composting

d) None

Correct Answer - C
Ans. *is* 'c' i.e., Composting
Composting
C'ompostig is a method of combined disposal of refuse and nightsoil or sluge.
o It is process of nature whereby orgaic matter breaks down under bacterial action resulting in the formation of
relatively stable humus-like material, called the compost which has considerable manurial value for the soil.
o Compost contains no or few disease producing organisms and is a good soil builder containing small amounts of
the major plant nutrients such as nitrates and phosphates.
o There are following two methods of composting.
i) *Bangalore method (Anaerobic method)*
ii)Mechanical composting (Aaerobic method).

874. In winter, water vapours and pollutants comes to lie in the lowermost layer of atmosphere by -

a) **Acid rain**

b) Greenhouse effect

c) Temperature inversion

d) None

Correct Answer - C
Ans. is `c' i.e., Temperature inversion
A temperature inversion is a thin layer of the atmosphere where the normal decrease in temperature with height swithees to the temperature increasing with height.

- An inversion can lead to pollution such as *smog being trapped close to the grand* (lower layers of atmosphere).

Temperature inversion may occur during the passage of a cold front or result from the invasion of sea air by a cooler onshore breeze.
o Overnight radiative cooling of surface air often results in a nocturnal temperature inversion that is dissipated after sunrise by the warming of air near the ground.

875. Vagabond disease is transmitted by ?

a) Louse

b) Mite

c) Tick

d) Black Fly

Correct Answer - A
Ans. is 'a' i.e., Louse
Vagabond's disease is pediculosis corporis, caused by *body louse.*

876. Source of environmental radiation are all except?

a) CO

b) Radium

c) Uranium

d) Radon

Correct Answer - A
Ans. is 'a' i.e., CO *[Ref Park 22'/e* p. *690]*
Environmental ratiation are of two types ?
1. Terrestrial
2. Atmospheric

Terrestrial radiation

- Radioactive elements such as thorium, Uranium, radium and an isotop of potassium (K40) are present in man's invironment, e.g., soil, rocks, boiling.
- It is estimated that man derives about 50 mrad per year from terrestrial radiation.
- Area exists (Kerala in India) where the rock formation containing uranium, it can be as high as 2000, mrad a year.

Atmospheric radiation

- These are radioactive gases radon and thoron

877. The amount of bleaching powder necessary to disinfect choleric stools, is -

a) 50 gm/lit

b) 75 gm/lit

c) 90 gm/lit

d) 100 gm/lit

Correct Answer - A
Ans. is 'a' i.e., 50gm/lit

878. Social psychology is ?

a) Human relationships & behaviour

b) Psychology of individuals in society

c) Cultural history of man

d) None

Correct Answer - B
Ans. is 'b' i.e.,Psychology of individuals in society *[Ref: Park 22"/e* p. *622]*
Study of human relationships and human behaviour → Sociology
Psychology of individuals living in human society → Social psychology
Study of physical, social and cultural history of man → Anthropology

879. Sociology -

a) Study of human relationship

b) Study of behavior

c) Both

d) None

Correct Answer - C
Ans. is 'c' i.e., Both
o Sociology deals with the study of human relationships and of human behaviour.

880. Study of physical, social and cultural history of man is known as?

a) Social science

b) Anthropology

c) Acculturation

d) Sociology

Correct Answer - B
Ans. is 'b i.e. Anthropology
o Anthropology is study of physical, social and cultural history of man.
o Anthropology may be:
(i) Physical anthropology: Study of human evolution, racial differences, inheritance of bodily traits, growth and decay of human organisms
(ii) Social anthropology: Study of the development and various types of social life.
(iii) Cultural anthropology: Study of total way of life of contemporary primitive man. his way of thinking, feeling and action.
(iv) Medical anthropology: Deals with the cultural component in the ecology of health and disease.

881. Organized group of people with social relationship?

a) Community

b) Association

c) Society

d) None

Correct Answer - C
Ans. is 'c' i.e. Society *[Ref Park 22'/e* p. *622]*
A society is a body of individuals of species, generally seen as a community or group, that is outlined by the bounds of functional interdependence, comprising also possible characters or conditions such as cultural identity, social solidarity or eusociality.
Human societies are characterized by patterns of relationships between individuals that share a distinctive culture or institution.
The importance of society lies in the fact that it controls and regulates the behaviour of the individual both by law and customs.

882. Acculturation is?

a) Traige

b) Cultural changes due to socialisation

c) Attitude

d) Belief

Correct Answer - B

Ans. is 'b' i.e., Cultural changes due to socialisation
Acculturation is a process of social, psychological, and cultural change that stems from the balancing of two cultures while adapting to the prevailing culture of the society. Acculturation is a process in which an individual adopts, acquires and adjusts to a new cultural environment.

883. Chronological age 10yrs, mental age 4yrs. What that person called as?

a) Idiot

b) Imbecile

c) Normal

d) Genius

Correct Answer - B
Ans. is 'b' i.e., Imbecile

884. M/C Heavy Metal poisoning in The World?

a) Lead

b) Arsenic

c) Mercury

d) Cadmium

Correct Answer - A
Ans. is 'a' i.e.,Lead *[Ref Park 22"/e* p. *752]*
More industrial workers are exposed to lead than any other toxic metal.

885. All are occupational cancers except ?

a) Lung

b) Bladder

c) Breast

d) Liver

Correct Answer - C
Ans. is 'c' i.e.,Breast
Asbestos → Mesotheliom a
Arsenic → Skin, Lung, Liver
Benzene → Leukemia
Benzidine → Urinary bladder
Berylium → Lung
Cadmium → Lung
Chromium → Nasal Sinus, Lung

886. Which occupational exposure may cause sterility in females ?

a) Lead

b) Carbon monoxide

c) Mercury

d) Agricultural insecticides

Correct Answer - D

Ans. is 'd' i.e.,Agricultural insecticides *[Ref Handbook of pesticide toxicology p.* 787

Pesticides exposure can cause -

1. Cancers :- In multiple organ systems
2. Endocrine abnormalities
3. Infertility and sterility
4. Brain damage
5. Birth defects :- Oral clefts, neural tube defects, heart defects, limb defects
6. Respiratory disorders :- Wheezing, bronchitis, asthma
7. Organ failure :- Chronic kidney disease or interstitial nephritis
8. Skin irrita*tion*

887. Effect of environment on genes is called?

a) Positive Eugenics

b) Negative Eugenics

c) Euthenics

d) Enthenics

Correct Answer - C

Ans. is 'c' i.e., Euthenics

Eugenics

- Science which aims to improve the genetic endoment of human population.

o That is improving the quality of the human species or a human population by *genetic manipulation.*

o Eugenis may be :

1. Negative Discouraging reproduction by persons having genetic defect or presumed to have inheritable undesirable traits this includes abortions, sterilization & other methods family planing.

2. Postive Eugenics -> Encouraging reproduction presumed to have inheritable desirable trait. For example, in vitro-fertilization, cloning, egg transplantation etc.

Euthenick

- Euthenics deal with human improvement through altering the external environment *(environmental manipulation).*
- **It** includes education, prevention and removal of contagious disease and parasites, education regardin^{g} home **economics,** sanitation and housing.

888. Hardly-weinberg law is related to-

a) Population genetics

b) Health economics

c) Social medicine

d) None of the above

Correct Answer - A
Ans. **is 'a' i.e., Population genetics**
<u>Hardly-Weinberg law</u>
The hardly-weinherg law states that *"The relative frequencies of each gene allele tends to remain constant from generation to generation".*
o Thus, the study of gene frequencies, and the influences which operate to alter the "gene pool" and their long term consequences is the central theme in *population genetics.*

889. Black color in triage -

a) **Death**

b) **Transfer**

c) **High priority**

d) **Low priority**

Correct Answer - A
Ans. is 'a' i.e., Death

890. True about triage -

a) Yellow-least priority

b) Red -morbidity

c) Green-ambulatory

d) Blue-ambulatory

Correct Answer - C
Ans. is 'c' i.e., Green ambulatory

891. Amount of waste infectious produced in hospitals?

a) 45%

b) 65%

c) 80%

d) 100%

Correct Answer - A
Ans. is 'a' i.e., 45%

892. Best for Incineration of infectiouswaste *?*

a) Double - chamber

b) Single - chamber

c) Triple - chamber

d) None

Correct Answer - A
Ans. is 'a' i.e., Double-chamber
o Three basic kinds of incineration technology are of interest for treatment of healh care wastes :
i) *Double-chamber* pyrolytic incinerators which may be especially designed *to* burn infectious health care waste.
ii) *Single-chamber* furnaces with static grate, which should be used only if pyrolytic incinerators are not affordable.
iii) *Rotary kilns* operating at high temperatures, capable of causing decomposition of genotoxic substances and heat-resistant chemicals.

893. All are true about panel discussion except *?*

a) Two way discussion

b) 6 to 20 members participates

c) Chief members initiates

d) Each one prepares the topic of discussion

Correct Answer - B
Ans. is 'b' i.e., 6-20 members participates
Panel discussion
o It is a *two way communication.*
4 - 8 persons who are qualified to talk about a topic and discuss a given problem *in front of a large group or audience.*
o The panel comprises a *chairman.*
o The chairman opens the meeting, **welcomes the** group and introduces the panel speakers.
o He indroduces topic briefly and invite the panel speakers to present their point of view.
o After the main aspects of subject are explored by panel speakers, the audience is invited to take part.
o If members of the panel are unacquainted with this method, they may have a preliminary meeting, *prepare the material* on the subject and decide upon the method and plan of presentation.

894. ICDS was launched at-

a) Community development block

b) Town level

c) City level

d) District level

Correct Answer - A
Ans. is 'a' i.e., Community development block
o ICDS was launched on 2"^{d} October 1975 in 33 *Community development block.*
o ICDS programme is a globally recognized community based early child care programme, which addresses the basic interrelated needs of yound children, expectant and nursing mothers and adolescent girls across the life cycle, in a holistic manner.

895. Kit B is given at -

a) PHC

b) Subccnter

c) CHC

d) FRU level

Correct Answer - B
Ans. is 'b' i.e., Subcenter

896. A trained dal caters for a population of -

a) 1000

b) *2000*

c) 3000

d) 4000

Correct Answer - A
Ans. is 'a' i.e., 1000
Local dais (Traditional birth attendants)
Under *Rural Health Scheme,* all categories of local dies are trained to improve their knowledge in the elementry concepts of : -
i) MCH
ii) Sterilization (Small family norm)
Training
Training is for *30 working days.*
o They are paid a *stipend o/ Rs. 300* during training period.
o Training is given for 2 days in a week at PHC, subcentre or MHC centre.
o On the remaining four days of the week they accompany the health worker female.
o During her training period each dai is required to *conduct at least 2 deliveries* under the supervision of health worker.
The national target is to train one local dai in each village.
Note : *One village is equivalent to 1000 rural population.*

897. Height to weight is a/an -

a) Association

b) Correlation

c) Proportion

d) Index

Correct Answer - A
Ans. is 'a' i.e., Association
First read about these two related terms *:?*
o Association ---> Association may be defined as the concurrence of two variables more often than would be expected by chance. That mean 2 variables exist simultaneously.
o *Correlation* —> Correlation indicates the *degree (strength) of association between two variables,* i.e. relationship between two quantitative variables.
o Height to weight is an association and the strength of this association is indicated by correlation.

898. Correlation in height & weight are measured by?

a) Coefficient of variation

b) Range of variation

c) Correlation coefficient

d) None

Correct Answer - C
Ans. is 'c' i.e., Correlation Coefficient

899. In a Left skewed curve, true statement is?

a) Mean = Median

b) Mean < Mode

c) Mean>Mode

d) Mean = Mode

Correct Answer - B
Ans. is 'b' i.e., Mean < Mode

900. Trends can be represented by -

a) Line diagram

b) Bar diagram

c) Scatter diagram

d) None

Correct Answer - A
Ans. is 'a' i.e., Line diagram
Line diagram (Line chart/Line graph)
o It is used to show the trend of events with passage of time and shows how the frequency of a particular event or variable vary over time.

901. Most common deviation used in social medicine is-

a) Mean

b) Range

c) Variance

d) Standard deviation

Correct Answer - D
Ans. is 'd' i.e., Standard deviation
"Standard deviation is most common and generally most appropriate measure of dispersion (variation)".

902. The frequently occurring value in a data is -

a) Median

b) Mode

c) Standard deviation

d) Mean

Correct Answer - B
Ans. is 'b' i.e., Mode

903. Analysis done for expenditure of large proportion for small number and vice versa ?

a) ABC analysis

b) SUS analysis

c) HML analysis

d) VED analysis

Correct Answer - A
Ans. is 'a' i.e., ABC analysis

904. Bajaj committee in 1986 proposed?

a) Multipurpose health worker

b) Manpower and planning

c) Rural Health Service

d) Integrated health services

Correct Answer - B
Ans. is 'b' i.e., Manpower and planning

905. Under RCH programme, intervention done in selected districts -

a) Immunization

b) Treatment of STD

c) ORS therapy

d) Vitamin A supplementation

Correct Answer - B

Ans. is 'b' i.e.. Treatment of STD

o Interventions in all Districts

o Child survival interventions i.e., immunization, vitamin A (to prevent blindness), oral rehydration therapy and prevention of deaths due to pneumonia.

Safe motherhood interventions e.g., antenatal check up, immunization for tetanus, safe delivery, anaemia control programme.

- Implementation of Target Free Approach
- High quality training at all levels
- IEC activities.

Specially designed RCH package for urban slums and tribal areas.

- District sub-projects under local capacity enhancement.
- RTI/STD clinics at District Hospitals (where not available).
- Facility for safe abortions at PHCs by providing equipment, **contractual doctors etc.**

Enhanced community participation through Panchayats, Women's Groups and NGOs.

- Adolescent health and reproductive hygiene.

o jnten-ent ions in selected States/Distts.

a Screening and treatment of RTI/STD at sub-divisional level.

- Emergency obstetric care at selected FRUs by providing drugs.
- Essential obstetric care by providing drugs and PHN/Staff Nurse at PHCs.
- Additional ANM at sub-centres in the weak districts for ensuring MCH care.
- Improved delivery services and emergency care by providing equipment kits. IUD insertions and ANM kits at sub-centres.
- Facility of referral transport for pregnant women during emergency to the nearest referral centre through Panchayat in weak districts.

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Facility of referral transport for pregnant women during emergency to the nearest referral centre through Panchayat in

weak districts.

906. Ujjwala is for -

a) Child abuse

b) Child trafficking

c) Child labour

d) None

Correct Answer - B
Ans. is 'b' i.e., Child trafficking
o The *'Ministry of women & child Development' has formulated a new comprehensive scheme for prevention of trafficking* and rescue, rehabilitation and reintegration of victims of trafficking and commercial sexual exploitation.
o The new scheme has been conceived primarily for the purpose *preventing trafficking* on the one hand and rescue and rehabilitation of victims on the other.
o Target group includes -
i) Women & children who are vulnerable to trafficking for commercial sexual exploitation.
ii) Women & children who are victims of trafficking for commercial sexual exploitation.

907. National Leprosy Eradication Programme was started in -

a) 1949

b) 1955

c) 1973

d) 1983

Correct Answer - D
Ans. is 'd' i.e., 1983

908. Direct cash transfer scheme to adolescent girls is covered under -

a) Indira Gandhi scheme

b) Rajiv Gandhi scheme

c) CSSM

d) RCH

Correct Answer - B
Ans. is 'b' i.e., Rajiv Gandhi Scheme
o Direct cash transfer scheme to adolescent girls comes under *"Rajiv Gandhi Scheme for Empowerment of Adolescent Girls"*

909. Multi-purpose worker scheme in India was introduced following the recommendation of *?*

a) Srivastava Committee

b) Bhore Committee

c) Kartar Singh Committee

d) fsludaliar Committee

Correct Answer - C
Ans. is 'c' i.e., Kartar Singh committee
Health Planning in India
The guide lines for national health planning were provided by a number of committees.
o These committees were appointed by the Government of India from time to time to review the existing health situation and recommend measures for further action.

910. Mid day meal programme comes under *?*

a) Ministry of Social Welfare

b) Ministry of education

c) Ministry of Human Resources Developments

d) None

Correct Answer - B
Ans. is 'b' i.e., Ministry of education
It is also called as National Programme of Nutritional Support to Primary Education. It was launched in 1995. Mid-day meal should provide 1/3 of total energy and 1/2 of total protein requirements.

911. Simplest measure of mortality *?*

a) Crude death rate

b) Case fatality rate

c) Proportional mortality rate

d) Specific death rate

Correct Answer - A
Ans. is 'a' i.e., Crude death rate
o The simplest measure of mortality is the crude death rate.

912. What is absent in breast milk ?

a) Vit K

b) Vit C

c) Lactose

d) Vit A

Correct Answer - A
Ans. is 'a' i.e., Vitamin K
o Milks from the mother whose diet is sufficient and properly balanced will supply all the necessary nutrients except fluoride and Vitamin D.
o The iron content of human milk is low, but most normal term infants have sufficient iron stores for the first 4-6 months. Human milk iron is well absorbed. Nonetheless, by 6 months the breast-fed infant's diet should be supplemented with iron fortified complementary foods.
o The Vitamin K content of human milk is low and may cause hemorrhagic disease of newborn.

913. IMNCI target group -

a) Upto 5yrs

b) **Upto** 10 yrs

c) Upto 15 yrs

d) Upto 20 yrs

Correct Answer - A
Ans. is 'a' i.e., Upto 5 years

914. Above which level of heat stress index it is not possible to work comfortably -

a) 20 - 40

b) 40 - 60

c) 60 - 80

d) 80 - 100

Correct Answer - B
Ans. is b'., 40-60
o HSI 40-60 causes severe heat strain and it is not possible to work comfortably.

915.

Students receive how much cereal /day in mid day meal prog -

a) 50 gm

b) 100 gm

c) 150 gm

d) 75 gm

Correct Answer - D
Ans. is 'd' i.e., 75 gm

916. **Low glycemic index is classified as value less than:**

a) 25

b) 45

c) 55

d) 65

Correct Answer - C

Concept of glycemic index has utility in management of diabetes and obesity.

Classification	GI range	Example
Low GI	55 or less	Most fruits and vegetables except potatoes and water melon, pasta beans, lentils
Medium GI	56-69	Sucrose, brown rice, basmati rice
High GI	70 or more	Corn flakes, white bread, candy bar

Ref: Park 22nd edition, page 568

917. Nutritional supplement for two year old child under ICDS scheme is -

a) 200 Calorie

b) 300 Calorie

c) 400 Calorie

d) 500 Calorie

Correct Answer - D
Ans. is 'd' i.e., 500 calories
o Under ICDS Scheme supplementary nutrition is given to:
Children below 6 yrs
Nursing mothers
Expectant mothers
o The aim is to supplement nutritional intake for
1) Each child 6-72 months of age —) 500 calories and 12-15 grams of protein (financial norm of Rs 6.00 per child per day).
2) Severely malnourished child 6-72 months of age --> 800 calories and 20-25 grams protein (financial norm of Rs 6.00 per child per day).
3) Each pregnant and nursing woman 600 calories and 18-20 grams of protein (financial norm of Rs 5.00 per beneficiary per day).

- Under the revised nutritional and feeding norms for supplementary nutrition, State governments/UTs have been mandated to provide more than one meal to the children who come to AWCs, which include providing a morning snack in the form of milk/banana/egg/seasonal fruit/micronutrient fortified food followed by a hot cooked meal. For children below 3 years of age and pregnant & lactating mothers, *"take home ration"* is to be provided. o *Supplementary nutrition is given for 300 days a year.*

918. Black death

a) Plague

b) Dengue

c) TB

d) Cholera

Correct Answer - A
Answer-A. Plague
White disease → AIDS
Poverty disease → Cholera
Hundred day cough: Pertussis (Whooping cough)
5 day fever: Trench fever
8" day disease: Tetanus
Black sickness: Kala azar
Black death: Plague

919. Irregular pupil is seen in ?

a) Glaucoma

b) Trauma

c) Occulomotor pulsy

d) Retinal detachment

Correct Answer - B
Ans, B. Trauma
Irregular:- It is jagged looking and occurs most often after orbital trauma.

920. Diopteric power is related -

a) Directly to square of focal length

b) Inversely to focal length

c) Directly to focal length

d) Inversely to square of focal length

Correct Answer - B

Answer- B. Inversely to focal length

- Optical power (also referred to as dioptric power, refractive power, focusing Power,or convergence Power) is the degree to mirror, or other optical system converges or diverges light.

921. Visual axis is

a) Center of cornea to retina

b) Object to fovea

c) Center of lens to cornea

d) None

Correct Answer - B
Ans. Object to fovea

922. Eye structure with maximum refractive power:
March 2007

a) Anterior surface of lens

b) Posterior surface of lens

c) Anterior surface of cornea

d) Posterior surface of cornea

Correct Answer - C
Ans. C: Anterior surface of cornea
Together with the lens, the cornea refracts light, accounting for approximately two-thirds of the eye's total optical power. In humans, the refractive power of the cornea is approximately 43 dioptres. While the cornea contributes most of the eye's focusing power, its focus is fixed.
The curvature of the lens, on the other hand, can be adjusted to "tune" the focus depending upon the object's distance.

923. Foster's fusch's spots are seen in

a) Hypermetropiea

b) Myopia

c) Astigmatism

d) None

Correct Answer - B
Ans. Myopia

924. Astigmatism is considered to be:

a) Spherical abberation

b) Curvatural ametropia

c) Axial ametropia

d) Index ametropia

Correct Answer - A
Ans. Spherical abberation

925. Low astigmatism in dim light is due ?

a) Pupil constriction

b) Pupil dilatation

c) Increased curvature of lens

d) Decreased curvature of lens

Correct Answer - B
Ans. B. Pupil dilatation

926. A wave in ERG is due to activity of:

a) Pigmented epithelium

b) Rods and cones

c) Ganglion cell

d) Bipolar cell

Correct Answer - B
Ans. Rods and cones

927. 2nd Purkinje image is ?

a) Erect and moves in same direction

b) Inverted and moves in same direction

c) Erect and moves in opposite direction

d) Inverted and moves in opposite direction

Correct Answer - A
Ans. is 'a' i.e., Erect and moves in same direction
1st from anterior surfac: of cornea --> Erett anil moves in same direction.
2nd from posterior surface of cornea --> Erect and moves in same direction.
3rd from anterior surface of lens --> Erect and move in same direction.
4th from posterior surface of lens --> Inverted and moves in opposite direction

928. Corneal endothelial cell count is measured by ?

a) Specular microscope

b) Ophthalmoscope

c) Synoptophore

d) Amsler's grid

Correct Answer - A
Ans. is 'a' i.e., Specular microscope
Corneal endothelium is examined with specular microscope, which allows a clear morphological study of endothelial cells including photographic documentation.
The cell density of endothelium is around 3000 cells/mm2 in young adults, which decreases with advancing age.

929. Features of vernal conjunctivitis are:

a) Shield ulcer

b) Horner-Tranta's spots

c) Papillary hypertrophy

d) All

Correct Answer - D
Ans. A, B and C

930. Complication of vernal kerato conjunctivitis:

a) Cataract

b) Keratoconus

c) Retinal detachment

d) Vitreous hemorrhage

Correct Answer - B
Ans. Keratoconus

931. Treatment of vernal keratoconjunctivitis includes all except:

a) Steroids

b) Chromoglycate

c) Olopatadine

d) Antibiotics

Correct Answer - D
Ans. Antibiotics

932. Neonatal conjunctivitis is caused by all except:

a) *Gonococcus*

b) *Chlamydia*

c) *Aspergillus*

d) *Pseudomonas*

Correct Answer - C
Ans. *Aspergillus*

933. Subconjunctival cyst is seen in?

a) Toxoplasmosis

b) Cysticercosis

c) Leishmaniasis

d) Chaga's disease

Correct Answer - B
Ans. is b i.e., Cysticercosis
Parasitic cysts occurs in *subconjunctival cysticercus,* hydatid cyst and filarial cyst.

934. Which bacteria penetrates intact cornea ?

a) Corynebacterium

b) Pneumococcus

c) Morexella

d) E. coli

Correct Answer - A

Ans. is 'a' i.e., Corynebacterium

<u>Bacterial corneal ulcer</u>

- Bacterial corneal ulcer, also called *suppurative keratitis,* is due to organisms that produce toxin which cause tissue necrosis and pus formation in the corneal tissue. Purulent keratitis is nearly always exogenous, due to pyogenic organism. As long as the cornea is healthy, the majority of bacteria are unable to cross or adhere to the corneal epithelium. Therefore the two main predisposing factors for bacterial corneal ulcer are : -

1. *Damage to corneal epithelium*
2. *Infection of the eroded area*

- However, *there are a few species that are capable of penetrating an intact epithelium : -*

1. *Neisseria gonorrhoea*
2. Neisseria meningitidis
3. *Corynebacterium diphtheriae*
4. *Listeria species*
5. *Haemophilus agyptus*

- Bacteria which cause corneal ulcer (Purulent keratitis) after epithelial injuries are : -

1. *Pseudomonas*

2. *Pneumococcus*
3. *Streptococcus epidermidis*
4. *Staphylococcus aureus*
5. *Morexella*
6. *Enterobacterias*
7. *Proteus, Klebsiella)*

- Although there are specific presentations depending on the bacteria involved, there exists a series of symptoms and signs common to all that allow for a rapid diagnosis, and therefore early treatment of corneal ulcers. *The most important symptoms are pain, lacrimation, foreign body sensation, conjunctival injection (red eye), photophobia and blurred vision.* There is lid swelling, blepharospasm and yellow white areas of ulcer with swollen and overhanging marin may be seen.

935. Herpetic keratitis is treated by

a) Analgesics

b) Atropine

c) Steroids

d) Idoxuridine

Correct Answer - D

Ans: D i.e. Idoxuridine

- Drug of choice for herpetic keratitis is Acyclovir Q (topical)
- Other antiviral drugs used are
- Idoxuridine
- Trifluorothyrnidine
- Vidarabine

936. Disciform keratitis is seen ?

a) HSV

b) HIV

c) HBV

d) Rubella

Correct Answer - A
Ans. A. HSV

937. Satellite nodules are seen *in*

a) Fungal corneal ulcer

b) Tuberculosis

c) Sarcoidosis

d) Viral ulcer

Correct Answer - A
A i.e. Fungal corneal ulcer

938. Most common protozoan causing keratitis is

a) Plasmodium

b) Acanthamoeba

c) Toxoplasma

d) W. bancrofti

Correct Answer - B

Ans. is `b' i.e., Acanthamoeba [Ref Kanski 8th/e p. 197]

"Acanthamoeba keratitis is the most common keratitis caused by a protozoan especially in contact lens users".

939. Corneal dystrophy, true is -

a) Inflammatory

b) Neovascularization

c) Bilateral

d) All

Correct Answer - C
Ans. C. Bilateral
Corneal dystroPhy is a group of disorders, characterized by a non-inflammatory, inherited, bilateral opacity of the cornea.
There is no vascularization of cornea.
Dystrophies are classified according to the anatomical involvement.

940. Following corneal transplantation, most common infection occur ?

a) Staph epidermidis

b) Streptococcus

c) Klebsiella

d) Pseudomonas

Correct Answer - A

Ans. A. Staph epidermidis

Pneumococcus and staphylococcus aureus have been found to be the commonest microorganisms in the developed world, whereas staph epidermidis is the commonest in developing countries, for causing infectious keratitis after corneal transplantations.

941. 1st sign of anterior uveitis ?

a) Keratic precipitate

b) Aqueous flare

c) Hypopyon

d) Miosis

Correct Answer - B
Ans. B. Aqueous flare

942. 1st sign of iridocyclitis ?

a) Retrolental flare

b) KP

c) Congestion

d) Trichiasis

Correct Answer - A
Ans. A. Retrolental flare

943. Most common cause of anterior uveitis ?

a) CMV

b) Ankylosing spondylitis

c) Toxoplasma

d) None

Correct Answer - A
Ans, A. CMV

944. Iritis in young patient with joint pain -

a) Gout

b) RA

c) AS

d) Toxoplasma

Correct Answer - C
Ans, C. AS

945. Commonest complication of pars planitis ?

a) Glaucoma

b) Cataract

c) Retinal detachment

d) Vitreous hemorrhage

Correct Answer - B
Ans. B. Cataract
The most common complication of intermediate uveitis (pers ptanitis) is cystoid macular edema, which may decrease the visual acuity.
2nd most common complication is complicated cataract'
Other complication includes retinal detachment.

946. Metamorphopsia is seen in ?

a) Anterior uveitis

b) Posterior uveitis

c) Cataract

d) Glaucoma

Correct Answer - B
Ans. B. Posterior uveitis
Matamorphopsia is a condition in which patients perceive distorted images of the object.
It occurs in Posterior uveitis due to alteration in retinal contour'

947. Recurrent anterior uveitis with increased intraocular tension is seen in ?

a) Posner schlossman syndrome

b) Foster kennedy syndrome

c) Vogt-koyanagi-harada syndrome

d) None

Correct Answer - A
Ans. A. Posner schlossman syndrome
Glamatocyclitic crisis (posner - Schlossman syndrome) is a unilateral recurrent non- granulomatous iritis that is associated with an elevated ocular pressure during the attacks'

948. Congenital cataract commonly associated with visual defect?

a) Punctate Cataract

b) Blue dot cataract

c) Zonular cataract

d) Fusiform cataract

Correct Answer - C
Ans. C. Zonular cataract
Lamellar (Zonular) cataract is the most common type of congenital cataract presenting with visual impairment.
It is usually bilateral and frequently causes servere visual defects'

949. Decreased reading ability is seen in ?

a) Fusiform cataract

b) Zonular cataract

c) Blue dot cataract

d) Punctate cataract

Correct Answer - B
Ans, B. Zonular cataract

950. Lens subluxates in homocystinuria ?

a) Inferotemporal

b) Inferonasal

c) Superonasal

d) Superotemporal

Correct Answer - B
Ans. B. Inferonasal

951. Second sight is seen in ?

a) Nuclear cataract

b) Cortical cataract

c) Zonular cataract

d) Punctate cataract

Correct Answer - A
Ans. A. Nuclear cataract
When a nuclear cataract develops, it can bring about a temporary improvement in near vision, called 'second sight'.

952. Congenital cataract with visual disturbances surgery should be done ?

a) Immediately

b) After 2 months

c) After 4 months

d) After 1 year

Correct Answer - A
Ans. A. Immediately

953. Most common type of congenital cataract is ?

a) Capsular

b) Zonular

c) Coralliform

d) Blue dot

Correct Answer - D
Ans D. Blue dot
Most common type of congenital cataract = punctate (blue dot) cataract.
Most common type of cataract which is clinically (visually) significant + zonular or lamellar cataract.

954. Treatment of traumatic cataract in children ?

a) ECCE + IOL

b) Lensectomy

c) Contact lens

d) Glasses

Correct Answer - A

Ans. A. ECCE + IOL

Traumatic cataract in children is a common cause of unilateral loss of vision.

Penetrating injuries are usually more common than blunt injuries.

At the time of presentation after trauma to eye, primary repair of the corneal or scleral wound is usually preferred,

Cataract surgery GCCE) with IOL implantations is performed later following complete evaluation of damage to the intraocular structures by ancillary methods such as B-scan ultrasonography.

955. Jack in box scotoma is seen after correction of Aphakia by?

a) IOL

b) Spectacles

c) Contact lens

d) None

Correct Answer - B

Jack-in-the-box phenomenon is seen in the correction of aphakia by spectacles due to the prismatic effects at the edge of the lens.

Other difficulties in the correction of aphakia by spectacles include the following:

- Image magnification by 25–30%.
- Pin Cushion distortion - a spherical aberration due to thick spectacles.
- Restricted field with Jack in the Box phenomenona/Roving Ring scotoma - a prismatic aberration.
- Cosmetically, the eyes look enlarged (Frog eyes) behind the thick spectacles.
- Physical inconvenience.

Treatment of choice:

- correction is obtained by intraocular lens (IOL).

956. False about phacolytic glaucoma ?

a) Due to contact of iris to lens

b) Open angle glaucoma

c) Seen in hypermature stage of cataract

d) Lens induced glaucoma

Correct Answer - A

Ans. A. Due to contact of iris to lens

Phacolytic glaucoma is an open angle glaucoma in hypermature stage of cataract due to blockage of trabecular meshwork by swollen macrophages.

Glaucoma due to contact of iris to lens (pupillary block glaucoma) is seen in phacomorphic glaucoma.

957. Neovascular glaucoma is seen in all except?

a) Diabetes

b) CRVO

c) Eale's disease

d) Open angle glaucoma

Correct Answer - D
Ans. D. Open angle glaucoma
It is a secondary angle closure glaucoma which results due to formation of neovascular membrane over the iris i.e., neovascularization of iris (rubeosis iridis).

958. Laser iridotomy is done in ?

a) Angle closure glaucoma

b) Open angle glaucoma

c) Pigmentory glaucoma

d) None

Correct Answer - A
Ans. A. Angle closure glaucoma
Treatment of choice for PACG is peripheral laser iridotomy.

959. In acute angle closure glaucoma, primary mechanism of pathogenesis is ?

a) Increased secretion

b) Increased absorption but increased secretion

c) Outflow obstruction

d) None

Correct Answer - C
Ans, C. Outflow obstruction
In acute angle closure glaucoma, rise in IOP occurs due to blockage of aqueous outflow by closure of a narrower angle of anterior chamber.

960. Not a risk factor for angle closure glaucoma ?

a) Small eye

b) Hypermetropia

c) Small cornea

d) Small lens

Correct Answer - D
Ans. D. Small lens
Predisposing factors for PACG :- i) Shallow anterior chamber,ii) Short eye (short axiallensth),i1i) Smaller corneal diameter, iv) Anterior location of iris-lens diaphragm, v) Hlpermetropic eye, vi) Large lens (older cataractous).

961. Best drug for open angle glaucoma ?

a) Latanoprost

b) Pilocarpine

c) Physostigmine

d) Apraclonidine

Correct Answer - A
Ans. A. Latanoprost
Medical therapy :- Total medical therapy is the treatment of choice for POAG. Topical p-blockers (Timolol, Betoxalol, Levobunolol, carteolol) are the drugs of choice.
Topical prostaglandin analogues (Iatanoprost, bimatoprost, travoprost) are the second choice drugs.

962. Broadest neuroretinal rim is seen in -

a) Sup pole

b) Inf pole

c) Nasal pole

d) Temporal lobe

Correct Answer - B
Ans., B. Inf pole
The neurorentinal rim is the area of optic disc which contains neural elements and is located between the edge of the optic disc and the physiological cup.
The neuroretinal rin is broadest Inferiorly, followed by Superior, Nasal and Temporal regions in decreasing order ofthickness (the ISNT) rule.

963. Retinitis pigmentosa is due to defect in which gene-

a) Scotopsin

b) Rhodopsin

c) Pigmented epithelium

d) None

Correct Answer - B
Ans. B. Rhodopsin
Several different rhodopsin gene mutations have been identified in the pedigrees with autosomal dominant retinitis pigmentosa.

964. Eales disease is ?

a) Recurrent optic neuritis

b) Recurrent pappilloedema

c) Recurrent periphelbitis retinae

d) None

Correct Answer - C
Ans, C. Recurrent periphelbitis retinae
Eale's disease is an idiopathic inflammatory venous occlusion (phelbitis) that primarily effects the peripheral retina i.e., periphelbitis and is characterizedby recurrentbilateral vitreous hemorrhage.

965. Shaffer's sign is seen in ?

a) Retinitis pigmentosa

b) Retinal detachment

c) CRVO

d) CRAO

Correct Answer - B
Ans. B. Retinal detachment
Vitreous show pigment in the anterior vitreous (tobacco dusting or shaffer sign), with posterior vitreous detachement.

966. Deposit in retinal macular degeneration ?

a) Iron

b) Drusen

c) Lipochrome

d) Hemosiderine

Correct Answer - B
Ans. B. Drusen
Dry form of ARMD begins with characteristic yellow deposits in the macula called drusen between the retinal pigment epithelium and tie underlying choroid

967. Vitreous hemorrhage in diabetic retinopathy ?

a) Non-proliferative diabetic retinopathy

b) Proliferative diabetic retinopathy

c) Both

d) None

Correct Answer - B
Ans. B. Proliferative diabetic retinopathy

968. Head light in fog appearance is seen in ?

a) Syphilis

b) Toxoplasmoss

c) Toxocara

d) Herpes

Correct Answer - B
Ans. B. Toxoplasmoss
On fundoscopic examination, there is diffuse "headtightinthe fogappearance, in congenital toxoplasmosis.
This is due to combination of active retinal lesion in the center with depigmentation (the headlight) and severe vitreous inflammation (the fog).

969. Salt & pepper fundus ?

a) Cong toxoplasmosis

b) Cong histoplasmosis

c) Congenital syphilis

d) None

Correct Answer - C
Ans. C. Congenital syphilis

970. Cattle track appearence ?

a) CRVO

b) CRAO

c) Diabetic retinopathy

d) Syphilitic retinopathy

Correct Answer - B
Ans. B. CRAO

971. Eale's disease is ?

a) Retinal hemorrhage

b) Vitreous hemorrhage

c) Conjunctival hemorrhage

d) Choroidal hemorrhage

Correct Answer - B
Ans. B. Vitreous hemorrhage
Eale's disese is an idiopathic inflammatory venous occlusion that primarily affects the peripheral retina of young adult (20-30 yrs) male.
It is characterized by recurrent bilateral vitreous hemorrhage; therefore, also referred to as primary vitreous hemorrhage.

972. Extra retinal fibrovascular proliferation at ridge is?

a) Normal

b) Stage I ROM

c) Stage II ROM

d) Stage III ROM

Correct Answer - D
Ans. D. Stage III ROM
Disease Severity (Stage)
Prior to the development of ROP in the premature infant, vascularization of the retina is incomplete or "immature" (Stage 0).
Stage 1: Demarcation Line: This line is thin and flat (in the retina plane) and separates the avascular retina anteriorly from the vascularized retina posteriorly.
Stage 2: Ridge: The ridge arises from the demarcation line and has height and width, which extends above the plane of the retina. The ridge may change from white to pink and vessels may leave the plane of the retina posterior to the ridge to enter it. Small isolated tufts of neovascular tissue lying on the surface of the retina, commonly called "popcorn" may be seen posterior to this ridge structure and do not constitute the degree of fibrovascular growth that is a necessary condition for stage 3.
Stage 3: Extraretinal Fibrovascular Proliferation: Neovascularization extends from the ridge into the vitreous. This extraretinal proliferating tissue is continuous with the posterior aspect of the ridge, causing a ragged appearance as the proliferation becomes more extensive.
Stage 4: Partial Retinal Detachment: Stage 4, in the initial

classification was the final stage and initially known as the cicatricial phase. It was later divided into extrafoveal (stage 4A) and foveal (stage 4B) partial retinal detachments. Stage 4 retinal detachments are generally concave and most are circumferentially oriented. Retinal detachments usually begin at the point of fibrovascular attachment to the vascularized retina and the extent of detachment depends on the amount of neovascularization present.
Stage 5: Total Retinal Detachment: Retinal detachments are generally tractional and usually funnel shaped. The configuration of the funnel itself is used for subdivision of this stage depending if the anterior and posterior portions are open or narrowed

973. All are seen in 3' nerve palsy ?

a) Mydriasis

b) Loss of light reflex

c) Loss of abduction

d) Ptosis

Correct Answer - C
Ans. C. Loss of abduction

974. Swinging light test is positive in ?

a) Conjunctivitis

b) Glaucoma

c) Retrobulbar neuritis

d) Keratoconus

Correct Answer - C
Ans. C. Retrobulbar neuritis
Swinging flash light is used for relative efferent pathway defect (RAPD) which is most characteristic of lesions in the optic nerve. Thus it is positive in retrobulbar neuritis.

975. Optic tract lesion causes ?

a) Wernicke's hemianopic pupil

b) Amauratic pupil

c) Amauratic pupil

d) None

Correct Answer - A
Ans, A. Wernicke's hemianopic pupil
Wernicke's hemianopic pupil is seen in complete lesion of optic tract.

976. Amblyopia is caused by ?

a) Methyl alcohol

b) Penicillin

c) Propranolol

d) None

Correct Answer - A
Ans. A. Methyl alcohol
Toxic amblyopia is chronic retrobulbar neuritiswhich results from the damage to optic nerve by the exogenous poisons.
The toxic agents involve may be: Tobacco, ethyl atcohol, ethylene glycol, lead, arsenic, cannabis indica, carbon disulphide various drugs

977. Vitamin B_{12} deficiency causes ?

a) Centrocaecal scotoma

b) Binasal hemianopia

c) Constriction of peripheral field

d) Bitemporal hemianopia

Correct Answer - A

Ans., A. Centrocaecal scotoma

Vitamin B_{12} deficiency causes optic neuritis.

Most common visual field defect in optic neuritis is central or centrocaecal scotoma.

978. Cause of bilateral optic atrophy ?

a) Trauma to optic nerve

b) Intracranial neoplasma

c) CRAO

d) Optic neuritis

Correct Answer - B
Ans. B. Intracranial neoplasma

979. Earliest muscle to involve in thyroid ophthalmopathy?

a) MR

b) LR

c) IR

d) SR

Correct Answer - C
Ans. C. IR

980. Which of the following is longest extraocular muscle?

a) SR

b) MR

c) SO

d) IO

Correct Answer - C
Ans. C. SO
The superior oblique is the longest, thinnest extraocular muscle.

981. Treatment of choice for amblyopia is ?

a) Convergent exercises

b) Spectacles

c) Surgery

d) Conventional occlusion

Correct Answer - D
Ans. D. Conventional occlusion
The treatment of amblyopia should begin as early as possible. The amblyopic eye fails to develop vision and visual impairment remains Permanent unless it is treated before the age of 7 years. Amblyopic therapy works best when intitiated in young children under 3 years ofage.

982. After trauma, A person cannot move eye outword beyond mid point. The nerve injured is ?

a) 2^{nd}

b) 3^{rd}

c) 4^{th}

d) 6^{th}

Correct Answer - D

Ans, D. 6^{th}

All the extraocular muscles are supplied by 3rd cranial (occulomotor) nerve except for superior oblique and lateral rectus. superior oblique muscle is supplied by 4^{th}cranial (trochlear) nerve, and lateral rectus muscle is supplied by 6th cranial (abducent) nene. Beside these extraocular muscles, occulomotor (3rd) nerve also supplies levator palpebrae superioris, sphinctor pupillae (causes pupillary constriction), and ciliary muscle (causes accommodation).

983. Angle of squint is measured by ?

a) Gonioscopy

b) Prism

c) Retinoscopy

d) Keratometry

Correct Answer - B
Ans. B. Prism

984. Most common cause of ophthalmoplegia ?

a) Aneurysm

b) Infection

c) Mysthenia gravis

d) None

Correct Answer - A
Ans. A. Aneurysm
The most common indentifiable etiologies are ischemia, aneurysm, tumor and ttauma;some 20% remain unexplained.

985. Ataxia, nystagmus and ophthalmoplegia is seen in -

a) Mysthenia gravis

b) Chronic progressive external ophthalmoplegia

c) 3rd nerve palsy

d) None

Correct Answer - B
Ans. B. Chronic progressive external ophthalmoplegia
The most commonidentifiableetiologies are ischemia, aneurysm, tumor and trauma, some 20% remain unexplained.

986. Child with mild squint. Intrauterine, birth history, developmental history till date all normal. Corneal reflex normal. All other eye parameters normal except exaggerated epicanthal fold. Diagnosis ?

a) Pseudostrabismus

b) Accommodative squint

c) Exophoria

d) Esophoria

Correct Answer - A
Ans, A. Pseudostrabismus
Pseudoesotropia (apparent convergent squint - Due to prominent epicanthal fold.
Pseudoexotropia (apparent divergent squint - Due to hypertelorism.

987. MC orbital tumor ?

a) Nerve sheath tumor

b) Hemangioma

c) Lymphoma

d) Meningioma

Correct Answer - B
Ans. B. Hemangioma
Mostcommonorbital tumor -Cavernous hemangioma.
Most common malignant orbital tumor –Lymphoma.

988. Most common orbital tumor has its origin from?

a) Blood vessels

b) Nerves

c) Muscle

d) Lymph node

Correct Answer - A
Ans, A. Blood vessels
Most common orbital tumors are benign vascular tumors - Cavernous hemangioma.

989. Most common malignant tumour of eyelid is ?

a) Sebaceous gland carcinoma

b) Basal cell carcinoma

c) Squamous cell carcinoma

d) Malignant melanoma

Correct Answer - B
Ans, b. Basal cell carcinoma
Basal cell carcinoma is the most common malignant tumour of the eyelids and constitutes 85-90% of all malignant epithelialeyelid tumours.

990. Most common carcinoma of conjunctiva ?

a) Squamous cell Ca

b) Basal cell ca

c) Melanoma

d) Lymphoma

Correct Answer - A
Ans. A. Squamous cell Ca
Squamous cell carcinoma is the most common malignant lesion of the conjunctiva"

991. Retinal astrocytoma is seen in ?

a) Tuberous sclerosis

b) Sturge weber syndrome

c) Von Hippel-Lindau syndrome

d) None

Correct Answer - A
Ans. A. Tuberous sclerosis

992. Fusion of palpebral and bulbar conjunctiva is -

a) Symblepharon

b) Trichiasis

c) Ectropion

d) Tylosis

Correct Answer - A
Ans. A. Symblepharon
Adhesion of the lids to eyeball is called symblepharon.
It occurs due to fusion of palpebral conjunctiva (covering inner surface of lid) to bulbur conjunctiva (covering outer surface of eyeball).

993. Loss of eyelashes is ?

a) Tylosis

b) Madarosis

c) Trichiasis

d) Ectropion

Correct Answer - B
Ans. B. Madarosis
Madarosis refer to loss of eyelashes and sometimes also eyebrows

994. Madarosis is seen in ?

a) Addison's disease

b) Hypothyroidism

c) Acromegaly

d) None

Correct Answer - B
Ans. B. Hypothyroidism
Madarosis maY be seen in -

- Rubella
- Congenital Syphilis
- Congenital leber amaurosis
- Mayous Batten disease
- Thioridazine toxicity

995. Abnormally eccentric placed pupil is called ?

a) Polycoria

b) Corectopia

c) Corectopia

d) Ectopia lentis

Correct Answer - B
Ans. B. Corectopia

996. Massaging of nasolacrimal duct is done in ?

a) Acute dacryocystitis

b) Congenital dacryocystitis

c) Conjunctivitis

d) None

Correct Answer - B
Ans. B. Congenital dacryocystitis
Massage over lacrimal sac is the mainstay of treatment in congenital dacryocystitis.

997. Most common cause of intermittent proptosis ?

a) Orbital varix

b) Thyroid ophthalmopathy

c) Neuroblastoma

d) Retinoblastoma

Correct Answer - A
Ans. A. Orbital varix
Intetmittent proptosis:- Proptosis developing intermittently and rapidly in one eye when venous stasis is induced by forward bending or lowering the head, turning the head forcibly, hyperextension of the neck, coughing, forced expiration with or without compression of the nostrils, or pressure on jugular veins. The most important casue is orbital varix (varicocele).

998. Bilateral ptosis is seen in all except ?

a) Hyperthyroidism

b) Congenital

c) Trauma

d) Myotonic dystrophy

Correct Answer - C
Ans, C. Trauma

999. Unilateral lacrimal gland destruction may be caused by?

a) Inferior orbital fissure fracture

b) Fracture of roof of orbit

c) Fracture of lateral wall

d) Fracture of sphenoid

Correct Answer - B
Ans. B. Fracture of roof of orbit
Damage to the superior orbital structures, in fracture of roof of orbit, can cause diplopia, ptosis, optic neuropathy, ptosis, neuroPathy and lacrimal gland injury.

1000. Alkali causes ?

a) Symblepharon

b) Papilloedema

c) Optic neuritis

d) Retinal detachment

Correct Answer - A
Ans, A. Symblepharon

1001. Expulsive hemorrhage in cataract surgery is from?

a) Vortex vein

b) Ciliary artery

c) Choroidal vein

d) None

Correct Answer - B
Ans, B. Ciliary artery
Expulsive hemorrhage after cataract extraction or glaucoma surgery = Rupture of ciliary artery.
Expulsive hemorrhage in Retinal/Vitrous operation = Direct trauma to choroidal or vortex vein.

1002. Coloboma, most common site ?

a) Superotemporal

b) Inferonasal

c) Inferotemporal

d) Superonasal

Correct Answer - B
Ans. B. Inferonasal
A coloboma is a hole in one of the structures of eye, such as iris, retina, choroid or optic disc.
The eye develops in the embryo, from the optic cup and optic fissure. The optic fissure fuses at 5-7 weeks development.
Failure of this fusion leads to a gap in ocular tissue know as coloboma, typically located in the inferonasal quadrant.

1003. Iris cloboma is most common in ?

a) Inferotemporal

b) Soperotemporal

c) Inferonasal

d) Soperonasal

Correct Answer - C
Ans. C. Inferonasal
All clobomas (including iris) are mostly inferonasal.

1004. Enucleation is indicated in ?

a) Acute congestive glaucoma

b) Panophthalmitis

c) Retinoblastoma

d) None

Correct Answer - C
Ans, C. Retinoblastoma
Indications of Enucleation

- Absolute = Retinoblastoma, malignant melanoma.
- Relative = Painful blind eye, mutilating ocular injury, anterior staphyloma, phthisis DalEi, endophthalmitis, congenital anophthalmia or severe microphthalmia.

1005. Corneal tattooing is done by ?

a) Gold chloride

b) Silver chloride

c) Titanium chloride

d) Aluminium chloride

Correct Answer - A
Ans. A. Gold chloride
For tattooing Indian black ink gold chloride or platinum may be used.

1006. Staphlyoma involvement ?

a) Iris with conjunctiva

b) Conjunctiva with cornea

c) Choroid with retina

d) Iris with cornea

Correct Answer - D
Ans. D. Iris with cornea
Staphyloma is an abnormal protrusion of uveal tissue (iris or ciliary body or choroid) through a week and thin portion of cornea or sclera. So, staphyloma is lined internally by uveal tissue (iris or ciliary body or choroid) and externally by weak cornea or sclera.

1007. 65 year old person with hearing loss with normal speech discrimination is suffering from?

a) Noise induced hearing loss

b) Presbycusis

c) Ototoxic drug

d) NOHL

Correct Answer - B

Ans. is 'B' i.e., Presbycusis

Information in this question are :- (i) Old age (65 years), (ii) Hearing loss, and (iii) Preserved speech discrimnation.

Diagnosis is Presbycusis.

Presbycusis

- Presbycusis refers to sensorineural hearing loss in elderly individuals
- Characteristically, presbycusis involves bilateral high frequency hearing loss associated with difficulty in speech discrimination and central auditory processing information.

Four pathological types of presbycusis have been identified :-

- Sensory presbycusis There is epithelial atrophy with loss of sensory hair cells and supporting cells in the organ of corti. This process starts in the basal turn of cochlea and slowly progress towards the apex. Higher frequencies are affected but speech discrimination is preserved.
- Neural presbycusis :- There is atrophy of nerve cells in the cochlea and central neural pathways. Atrophy occurs throughout the cochlea, with the basilar region only slightly more predisposed than

the remainder of the cochlea. Therefore, no precipitous drop in threshold on audiometry is observed. Speech discrimination is poor.

- Metabolic (strial) presbycusis ;;- There is atrophy of stria vascularis. Atrophy results in hearing loss represented by flat audiogram, but speech discrimination is preserved.
- Mechanical (cochlear conductive) presbycusis :- There is thickening and secondary stiffening of the basilar membrane of the cochlea. The thickening is more severe in the basal turn of cochlea where the basilar membrane is narrow. This correlates with a gradually sloping high frequency sensorineural hearing loss. Speech discrimination is average.

1008. Athletic syndrome is characterized by:

a) Increased amplitude of QRS

b) Tachycardia

c) Decreased QT interval

d) U-waves

Correct Answer - A

The answer is A (Increased amplitude of QRS complex):

Athletic Heart Syndrome

- Athletic Heart Syndrome is a benign condition consisting of physiologic adaptations to the increased cardiac workload of exercise in trained athletes.
- It represents a constellation of clinical findings that are the result of normal physiologic adaptation to strenuous physical activity.
- In response to the increased physical demand, the left ventricles dilate and wall thickness increases. The mass to volume ratio, however, does not change.

Physical examination

- Decreased body fat and increased muscle mass (generally very physically fit)
- Pulse slow and often irregular (sinus bradycardia or bradycardia with first-and second-degree blocks)
- Grade I or II mid-systolic murmurs (benign functional ejection murmur resolves with Valsalva maneuver)
- Third and fourth heart sounds very common (benign filling sounds)
- Blood pressure typically remains normal

Electrocardiogram rhythm

- Rhythm
  - Sinus bradycardia of 40 to 55 beats /min while at rest

- Sinus pauses of more than 2.0 seconds due to increased vagal tone
- Wandering atrial pacemaker found only in dynamic athletes
- First degree atrioventricular block present only at rest; P-R interval normalizes with exercise
- Second degree atrioventricular block present only at rest: Mobitz I (wenckebach block) common in marathon runners; Mobitz II rare in athlete's heart.

- *Voltage:* TORS *voltage (Amplitude)*
  - Left ventricular hypertrophy found in 85% of Olympic marathon runners
  - Right ventricular hypertrophy common in dynamic athletes but rarely seen in sedentary controls and static athletes sedentary control and static athletes
- Repolarization
  - S-T segment elevation with peaked T waves normalizes with exertion
  - S-T segment depression may be rarely found in athletes

T-wave inversion in lateral leads associated with interventricular septal hypertrophy in static athletes (can be a normal finding in dynamic athletes)

Chest radiography

- The heart is globular in appearance, particularly in endurance athletes.
- Cardiomegaly (cardiothoracic ratio >0.50)

1009. Tall T waves on ECG are seen in:

a) Hyperkalemia

b) Hypokalemia

c) Hypercalcemia

d) Hypocalcemia

Correct Answer - A
Answer is A (Hyperkalemia)
Hyperkalemia is typically associated with Tall peaked narrow based frnted T wave.

1010. -30° to -60° left axis deviation is seen in

a) Left ventricular hypertrophy

b) Right ventricular hypertrophy

c) Aortic stenosis

d) Left atrial enlargement

Correct Answer - A

Answer- A. Left ventricular hypertrophy

Normally, QRS axis ranges from -30° to 90°C

An axis more negative than -30° is referred to as left axis deviation and an axis more positive than +100° is called right axis deviation

Left axis deviation

- Axis more negative than -30°
- Associated with
- Left ventricular hypertrophy
- Left anterior fascicular block
- Inferior M.I.

1011. Kussmaul's sign is classically described in:

a) Restrictive Cardiomyopathy

b) Pericardial Tamponade

c) Constrictive pericarditis

d) Right Ventricular Infarct

Correct Answer - C
Answer is C (Constrictive pericarditis)
Kussmaul's sign is classically described in association with Constrictive Pericarditis.
Kussmaul's sign refers to paradoxical elevation of JVP/CVP during inspiration (In healthy persons venous pressure falls during inspiration because pressures in the right heart decrease as intrathoracic pressures fall) The Kussmaul's sign is classically described in association with Constrictive pericarditis. Kussmaul's sign is however also seen in association with Right Ventricular Infarction, Restrictive Cardiomyopathy, Pulmonary Embolism and Advanced Systolic Severe Heart Failure

1012. Jaw tightness is typically seen in:

a) PAN

b) Coarctation of aorta

c) Giant cell arteritis

d) Wegner's Granulomatosis

Correct Answer - C
Answer is C (Giant Cell Arteritis):
Jaw Claudication (law Tightness) is a typical manifestation of Temporal arteritis or Giant cell arteritis.

1013. The 9 month old child of a diabetic mother presents with tachypnea and hepatomegaly. Echocardiography of the heart showed normal cardiac morphology with asymmetric septal hypertrophy. Which of the following you will give to treat this child :

a) Digoxin

b) Frusemide

c) Propranolol

d) Isoptin

Correct Answer - C
Answer is C (Propranolol)
The symptoms of the patient and echocardiographic finding of asymmetrical septal hypertrophy almost confirms the diagnosis of Hypertrophic cardiomyopathy. Beta Blockers should be the initial drug Q in symptomatic individuals
Management of HOCM

- Avoidance of strenuous physical activity
- Beta Blockers should be the initial drug Q in symptomatic individuals. They reduce:

  - Heart rate

  - Blood pressure

- Stiffness of left ventricle

- Fatal arrythmias

- Calcium channel Blockers[Q] (verapamil and diltiazem) are alternative drugs.

  - They reduce-stiffness of ventricle

  - Elevated diastolic pressures

- Amiadarone may be used to reduce arrythmias.
- Surgical myomectomy

1014. Paradoxical splitting of second heart sound is seen in?

a) RBBB

b) ASD

c) LBBB

d) VSD

Correct Answer - C
Answer is C (LBBB)
Left Bundle Branch Block (LBBB) is typically associated with Reversed or Paradoxical Splitting of S2
Paradoxical splitting of second heart sound is caused by delayed A2 or early P2. Left Bundle Branch Block (LBBB) is associated with delayed Aortic closure (delayed A2) due to delayed electrical activation of the left ventricle.
ASD and RBBB are associated with a wide physiological (non-paradoxical) split of second heart sound due to delayed pulmonic closure (Delayed P2) while VSD is associated with a wide physiological (non-paradoxical) split second heart sound from early aortic closure (Early A2).

1015. Which is increased in plasma of chronic heart disease pts

a) BNP

b) Endothelin 1

c) Cortisol

d) None

Correct Answer - A
Answer- A. BNP
The plasma concentrations of both hormones are increased in patients with asymptomatic and symptomatic left ventricular dysfunction, permitting their use in diagnosis.
BNP levels are simple and objective measures of cardiac function. These measures can be used to diagnoose heart failure including diastolic function.

1016. In asthma diagnosis is by

a) FEVi

b) Measurement of tidal volume

c) End expiratory flow rate

d) Total lung capacity

Correct Answer - A
Answer- A. FEVi
Asthma is classified according to the frequency of symptoms, forced expiratory volume in one second (FEV1), and peak expiratory flow rate.
Spirometry is recommended to aid in diagnosis and management. It is the single best test for asthma. If the FEV1 measured by this technique improves more than 12% and increases by at least 200 milliliters following administration of a bronchodilator such as salbutamol, this is supportive of the diagnosis.

1017. A person has asthma attacks more than once during day and once during night

a) Mild intermittent asthma

b) Mild persistent asthma

c) Moderate asthma

d) Severe asthma

Correct Answer - D
Answer- D. Severe asthma
Severe asthma
Symptoms- Throughout day
Night awakenings- Daily
Short-acting B2-agonist use for symptom control-Several times per day
Interference with normal activity- Extreme limitation
FEV1- < 60%
FEV1 /FVC= > 5% reduced

1018. Antibody used in the treatment of Bronchial Asthma is:

a) Omalizumab

b) Rituximab

c) Daclizumab

d) Transtusuzumab

Correct Answer - A

Answer is A (Omalizumab):

Omalizumab is a recombinant IgE Antibody approved for use in treatment of moderate and severe persistent asthma

Omalizumab *is a recombinant IgE blocking antibody that neutralizes circulating IgE.*

It prevents circulating IgE from binding to receptors on the surface of Basophils and Mast cells and thus inhibits IgE mediated reactions.

Omalizumab is indicated for treatment of 'moderate to severe' persistent asthma in patients who react to perennial allergens (Allergic Asthma).

Treatment with Omalizumab has shown to reduce the number of exacerbations in patients with
severe asthma and may improve asthma control.

However this treatment is very expensive and is only suitable for highly selected patients who are not controlled on maximal doses of inhaler therapy and have a high circulating IgE (within a specified range).

Omalizumab is usually given as a subcutaneous injection for 2 to 4 weeks and may be used in adults and adolescents more than 12 years of age.

1019. A child presents with recurrent pulmonary infections for hemoptysis due to associated bronchiectasia and on imaging characterized by unilateral loss of lung volume with hyperlucency on chest radiograph, reduction in vascularity on CT scan of the chest. The abdominal organs are normally place (d) most lilkely cause is

a) Kartagener's syndrome

b) Swyer-James-MacLeod syndrome

c) Mendelson's syndrome

d) Immotile cilia syndrome

Correct Answer - B
Answer- B. Swyer-James-MacLeod syndrome
Swyer-James-MacLeod syndrome or unilateral h erlucent lun ndrome is a rare entity associated with postinfectious bronchiolitis obliterans occurring in childhood.
It is characterized by hypoplasia and/or agenesis of the pulmonary arteries resulting in pulmonary parenchyma hypoperfusion, showing a characteristic radiological pattern, such as translucent or hyperlucent unilateral lung.

1020. **All are important pathogens causing pneumonia in COPD patients, EXCEPT:**

a) Haemophilus influenzae

b) Pseudomonas aeruginosa

c) Legionella spp

d) Klebsiella pneumoniae

Correct Answer - D

All are important pathogens causing pneumonia in COPD patients

- Haemophilus influenzae
- Pseudomonas aeruginosa
- Legionella spp
- S. pneumoniae
- Moraxella catarrhalis
- Chlamydia pneumoniae
- Klebsiella is an important pathogen causing pneumonia in chronic alcoholism.

Ref: Harrison, E-18, P-2132

1021. Fibrosis of upper lobe is due to

a) Pneumonia

b) ABPA

c) Bronchiectasis in COPD

d) Rheumatoid arthritis

Correct Answer - B
Answer- B. ABPA
Silicosis (Progressive massive fibrosis
Sarcoidosis
Coal worker pneumoconiosis
Ankylosing spondylitis
Radiation
Allergic bronchopulmonary aspergillosis
Tuberculosis
Extrinsic allergic alveolitis

1022. What is not seen in CRF

a) Hypercalcemia

b) Hyperkalemia

c) Hyperphosphatemia

d) Hypocalcemia

Correct Answer - A
Answer- A. Hypercalcemia
Abnormalities seen in CRF

- Acidosis
- Hyperkalemia
- Anemia
- Hypernatremia
- Hyperphosphatemia
- Hyperlipidemia
- Hyponatremia
- Hypocalcemia
- Uremia

1023. CRF with anemia best treatment:

a) Oral Iron Therapy

b) Erythropoietin Stimulating Agents

c) Blood transfusion

d) Androgenic Steroids

Correct Answer - B

Answer is B (Erythropoietin Stimulating Agents):

Erythropoiesis-stimulating agents (ESAs) have emerged as the treatment of choice for anemia in chronic renal disease. Erythropoiesis-stimulating agents (ESAs) should be given to all patients with chronic kidney disease (CKD) with haemoglobin levels consistently below II g/dl.

This applies equally to:

- *Patients with CKD (stages 1-5) developing anaemia*
- *Patients with CKD stage 5 treated with haemodialysis (HD) or peritoneal dialysis (PD)*
- *Transplant patients with chronic renal insufficiency and anaemia.*

Strategies for treatment of Anemia in Chronic Renal Failure

Erythropoiesis-stimulating agents (ESAs)

- Erythropoiesis-stimulating agents (ESAs) have emerged as the treatment of choice for anemia in chronic renal disease.
- They should be given to all patients with chronic kidney disease (CKD) with haemoglobin (Hb) levels consistently below 11 g/dl [haematocrit (Hct) <33%]
- All chronic kidney disease (CKD) patients with renal anaemia undergoing treatment with an erythropoiesis-stimulating agent (ESA) should be given supplementary iron to maintain adequate bone marrow iron stores

- *Intravenous administration is the optimum route for the delivery of iron to patients with CKD, as oral iron is poorly absorbed in uremic individuals.*

Blood Transfusion

- Red blood cell transfusions should be avoided, if at all possible, in patients with chronic kidney disease (CKD), especially those awaiting kidney transplantation.
- Transfusions should not be given unless patients have one or more of the following: Symptomatic anaemia (fatigue, angina, dyspnoea) and/or associated risk factors (diabetes, heart failure, coronary artery disease, arteriopathy)
- Acute worsening of anaemia due to blood loss (haemorrhage or surgery) or haemolysis Severe resistance to, or hyporesponsiveness to ESA therapy, e.g. due to the presence of a haematological disease or severe inflammatory systemic disease.

Androgens

- Prior to the introduction of ESA therapy, androgens were widely used in the treatment of renal anaemia.
- There is evidence that androgens may potentiate the effect of exogenous erythropoietic protein and also stimulate erythropoiesis by enhancing erythrocyte stemcell differentiation
- The risk of liver disease and malignancy, virilisation and hirsutism in women, priapism in men and disfiguring acne in patients of both sexes may outweigh the benefits of androgen therapy in most anaemic patients.
- Androgens may be an *effective alternative therapy in countries where ESAs are not available*

1024. Distal renal tubular acidosis is associated with:

a) Oxalate stones

b) Citrate

c) Calcium stones

d) Uric acid stones

Correct Answer - C

Answer is C (Calcium Stones):

Distal Renal Tubular Acidosis is associated with increased in cadence of Calcium Phosphate Stones Alkaline urine, Hypercalciuria and low levels of urinary citrate precipitate calcium phosphate stones in the kidney in patients with Distal Renal Tubular Acidosis (Typel).

Proximal Renal Tubular Acidosis (Type-2) is not associated with increased incidence of Renal Stones despite Hypercalciuria because urinary citrate levels are normal or high.

1025. The most common presentation for IgA nephropathy is:

a) Nephritic syndrome

b) Nephritic syndrome

c) Microscopic hematuria

d) Repeated gross hematuria

Correct Answer - D
Answer *is* D (Repeated Gross Hematuria):
The most common presentation of IgA Nephropathy is with recurrent episodes of Gross (Macroscopic) Hematuria during or immediately following an upper respiratory tract infection
'Recurrent attacks of Painless Gross Hematuria represent the classic clinical presentation of IgA Nephropathy' — Rudolph's Paediatrics

1026. HIV renal specific nephropathy is:

a) Focal Segmental Glomerulosclerosis

b) Membranoproliferative Glomerulonephritis

c) Mesangioproliferative Glomerulonephritis

d) Membranous Glomerulonephritis

Correct Answer - A

Answer is A (Focal Segmental Glomerulosclerosis):

*The most characteristic glomerulopathy in **HIV is** Focal Segmental Glomerulosclerosis (FSGS) which typically reveals collapse of the glomerular capillary tuft called collapsing glomerulopathy.*

HIV associated Nephropathy is a severe rapidly progressive collapsing form of FSGS.

1027. The initial treatment of choice for secondary hyperparathyroidism in renal osteodystrophy is:

a) Cinacalcet

b) Bisphosphonates

c) Calcium restriction

d) Phosphate binders

Correct Answer - D

Answer is D (Phosphate Binders)

The initial treatment of secondary hyperparathyroidism in renal osteodystrophy is management of high phosphate levels by dietary restriction and the use of Phosphate binders

- *The objectives of management are to maintain blood levels of calcium and phosphorous to as close to normal as possible, to prevent or treat established hyperparathyroidism early and to prevent parathyroid hyperplasia.*

Phosphate retention begins early in the course of CKD, perhaps as early as in stage 2 and participates in the development of secondary hyperparathyroidism.

Central to the management of high-turnover bone disease is controlling the serum phosphate levels.

This may be achieved by dietary phosphate restriction or by the use of phosphate binders.

Phosphate-binder therapy is recommended when serum phosphate concentrations are elevated despite patient compliance with dietary phosphate restriction.

Calcium-based phosphate binders are often recommended as the

initial binder therapy.

High Bone Turnover Disease

- *Bone turnover (the formation and removal of bone) is increased due to a process called secondary hyperparathyroidism (SHPT).*
- *Secondary hyperparathyroidism represents a common disorder in patients with CKD.*
- *It develops as a result of hyperphosphatemia, hypocalcemia and impaired renal vitamin D synthesis with reduction in serum calcitriol levels*

1028. Maximum urinary catheter induced infection

a) E.coli

b) Pseudomonas

c) Staphylococcus epidermidis

d) Proteus

Correct Answer - A
Answer- A. E.coli
Catheter associated urinary tract infections represent the most common type of nosocomial infection.
Most common organism causing catheter associated urinary tract infections are E.coli.

1029. Most common symptom of genitourinary TB

a) Renal colic

b) Increased frequency

c) Hematuria

d) Painful micturition

Correct Answer - B
Answer- B. Increased frequency
The clinical manifestations are variable.
The onset of clinically evident genitourinary tuberculosis is usually insidious.
The most common symptoms are :-
Dysuria, increased frequency of urination and gross hematuria

1030. What is the uppermost intercostal space used for hepatic biopsy :

a) 5th

b) 7th

c) 9th

d) 11th

Correct Answer - B

Answer is B 7th

The right surface of the liver is in contact with the diaphragm opposite the 7th to 11th ribs.

In needle biopsy of the liver through the intercostal route, the needle may be inserted through the 6th 7th, 8th, 9th or 10th right intercostal space in the mid-axillary line.

The 8th and 9th intercostal spaces are most commonly used.

Insertion in the 6th or 7th intercostal space may also be used but is associated with risk of injury to the Lung.

Needle is typically inserted at the end of expiration (Attempted Apnoea).

1031. The preferred test for confirming H. pylori eradication is:

a) Urease breath test

b) Culture

c) Serological test

d) Biopsy urease test

Correct Answer - A
Answer is A (Urease Breath Test)
The test of choice for documenting eradication is urease breath test. Assessment of success of Treatment with Eradication of H. Pylori should be done at least 4 weeks after completion of anti H. Pylori therapy. Non-invasive tests are typically preferred for assessment of Eradication. *The test of choice for documenting eradication is urease breath test. Urease breath test detects H. pylori infection by 'bacterial urease activity' and remains positive till the bacteria has not been eradicated with treatment. Thus urease breath test becomes negative only aftereradication of organism following treatment and not with chronic infection*.

1032. All of the following are used for treatment of H.Pylori, except:

a) Gentamycin

b) Clarithromycin

c) Metronidazole

d) Amoxicillin

Correct Answer - A
Answer is A (Gentamycin):
Gentamycin is not used in any of the successful multi-drug regimens ***against H. Pylori Infection.***

1033. Best provocative test for diagnosis of Gastrinoma is:

a) Ca^{++} infusion test

b) Secretin injection test

c) ACTH stimulation test

d) Steroid assay

Correct Answer - B
Answer is B (Secretin injection test)
Gastrinomas (Zollinger Ellison Syndrome) are characterized by peptic ulceration due to hypersecretion of gastrin by a non-beta cell tumor. Secretin injection test is the most valuable provocative test in identifying patients with ZES.

1034. Wilson's disease is characterized by -

a) Increased serum ceruloplasmin

b) Decreased copper excretion in urine

c) Increased copper in liver

d) Autosomal dominant

Correct Answer - C
Ans. is 'c' i.e., Increased copper in liver
Diagnosis of Wilson disease

- *The gold standard for diagnosis is liver biopsy with quantitative copper assay* --> concentration of copper in a liver biopsy sample > 200 mg/g dry weight.

Other tests are ?

- Serum ceruloplasmin level --> low o Urine copper excretion --> increased
- KF rings o DNA Haplotype analysis.

1035. All of the following statements about. Wilson's disease are true, EXCEPT-

a) It is an autosomal recessive disorder

b) Serum ceruloplasmin level is < 20 mg/dl

c) Urinary copper excretion is

d) Zinc acetate is effective as maintenance therapy

Correct Answer - C

Answer is C (Urinary copper excretion is <100R/day)

Urine copper is an important diagnostic too. Symptomatic patients invariably have urine copper levels > 100 p (>1.6 umol) per 24 hours.

Wilson's disease is an autosomal recessive disorder

It is caused by a mutation of a gene on chromosome B^{Q} which promotes Cu excretion (ATP 7B gene)

Symptomatic patients with Wilson's disease invariably have urinary copper excretion of >100 lig, per 24 hours (>1.6 innol /24 hr)

Zinc is the treatment of choice for maintainance therapy in Wilson's disease

Zinc is the treatment of choice in Wilson's disease for

A. Initial therapy in patients with hepatitis without decompensation(2

A. Maintainance therapy

B. Presymptomatic patient

C. Pediatric patients

D. Pregnant patients

1036. Diagnosis of carcinoid tumour is done Urinary estimation of:

a) VMA

b) Metanephrines

c) Catecholamines

d) 5HIAA

Correct Answer - D
Answer **is** D (5HIAA):
Carcinoid Tumors
Carcinoid tumors are associated with elevated levels of metabolites of Tryptophan/ serotonin which include 5HIAA, 5HT and5HTP.
Pheochromocytomas
Pheochromocytomas are associated with elevated levels of catecholamines and their metabolites which include Vanillylmandelic acid (VMA)and metanephrines
The diagnosis of Typical carcinoid syndrome is suggested by elevated levels of 5HIAA The diagnosis of Atypical Carcinoid Syndrome is suggested by elevated levels of 5HTP. established by elevated levels of 5HIAA.

1037. In Zollinger Ellison syndrome what is raised?

a) Insulin

b) VIP

c) Gastrin

d) Glucagon

Correct Answer - C
Ans. is 'c' i.e., Gastrin
Zollinger Ellison syndrome ?

- Severe peptic ulcer disease secondary to gastric acid hypersecretion due to *unregulated gastrin release* from a non 13 cell endocrine tumour (gastrinoma), defines the components of Zollinger Ellison syndrome.

Pathophysiology of Zollinger Ellison syndrome

- The driving force responsible for clinical manifestations of Zollinger Ellison syndrome is *hypergastrinemia* originating from Gastrinoma (autonomus neoplasm, non [3 cell neoplasm)
- Gastrinoma
- Hyper gastrinemia
- Hyper acidemia
- Peptic ulcer, erosive esophagitis and diarrhoea

Other important characteristic of Gastrinoma

- **o** Over 80% of these tumours are seen in Gastrinoma triangle° **(triangle formed between duodenum and pancreas)** most of them are seen in the head of pancreas.
- o About $^{2}/_{3}$'of these tumours are malignant°.
- o About one half of these tumours are multiple°.

- o About one fourth of the patients have multiple endocrine neoplasia (MEN I) syndrome with tumours of parathyroid, pituitary and pancreatic islets being present.

  <u>Remember</u> :

  Most common site of gastrinoma's is → Duodenum (50-70%), (Pancreas 20-40%)

  Most common hormone to be secreted besides gastrin is → ACTH

  Most common site of peptic ulcers produced is → I^{s}' part of Duodenum.

  Most valuable provocative test in injection tests. identifying patients with ZES is → *The Secretin*

  Basal acid output is greater than 60% of out pu induced by maximal stimulation → BAO> MAO
- The term pancreatic endocrine tumour is misnomer because these tumours can occur either almost exclusively in the pancreas or at both pancreatic and extrapancreatic sites

1038. All following are at-risk group adults meriting Hepatitis B vaccination in low endemic areas except:

a) Patients on chronic hemodialysis

b) Diabetics on insulin

c) Medical/nursing personnel

d) Patients with chronic liver disease

Correct Answer - B

Answer is B (Diabetics on Insulin):

- Behavioral: Sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one sex partner during the previous 5 months): persons seeking evaluation or treatment for a sexually transmitted disease (STD): current or recent injection-drug users; and men who have sex with men.
- Occupational: Healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids.
- Medical: Persons with end-stage renal disease, including patients receiving hemodialysis; person with HIV infection; and persons with chronic liver disease.
- Other: Household contacts and sex partners of persons with chronic HBV infection; clients and staff members of institutions for persons with developmental disabilities; and international travellers to countries with high or intermediate prevalence of chronic HBV infection.
- Hepatitis B vaccination is recommended for all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities;

facilities providing drug-abuse treatment and prevention services; healthcare settings targeting services to injection—drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential day-care facilities for persons with developmental disabilities.

- Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. These second dose should be administered 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, administered on days 0, 7, and 21 to 30, followed by a booster dose at month 12 may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 pg/mL (Recombivax HB) administered on a 3-dose schedule or 2 doses of 20 Ug/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

1039. Schilling test is Abnormal in:

a) Intrinsic factor deficiency

b) Amylase deficiency

c) Lipase deficiency

d) Pancreatic endocrine insufficiency

Correct Answer - A
Answer is A (Intrinsic factor deficiency)
Shilling's test is typically done to determine the cause of cobalamine malabsorption (Vitamin B12 malabsorption) *Vitamin $_{B12}$ absorption (Schilling) test is typically used to diagnose conditions in which intrinsic factor (IF) may be absent, such as pernicious anemia or gastric atrophy. A diagnosis of Intrinsic factor deficiency can be established if radiolabelled cobalamine (Vitamin B12) appears in urine after administration of Intrinsic factor.*
Since cobalamine absorption requires multiple steps including gastric, pancreatic and ileal processes, the Schilling test can also be used to assess the integrity of these other organs.
Dietary vitamin B $_{12}$ is bound in the stomach to an endogenous protein called R protein. Pancreatic enzymes degrade the R protein in the proximal small bowel and lower its affinity for vitamin B_{12} resulting in the rapid transfer of B 12 to IF; The IF-B_{12} Complex continues to the terminal ileum, where it binds to specific receptors on the surface of the epithelial cells.
Thus lack of intrinsic factor, lack of sufficient pancreatic enzymes (pancreatic exocrine dysfunction) or presence of terminal heal mucosal disease may all result in abnormal vitamin $_{B12}$ excretion.

1040. Secretory diarrhea is not seen in:

a) Phenolphthalein

b) Celiac disease

c) Cholera

d) Addison's Disease

Correct Answer - B

Answer is B (Celiac Disease)
Celiac Disease is associated with Steatorrheal diarrhoea from mucosa! malabsorption.

Secretory Diarrhea

- Certain Bacterial Infection
- Vibrio Cholera
- Enterotoxigenic E.Coli
- Non Osmotic Stimulant Laxatives
- Hormone Producing Endocrine Tumors
- Carcinoid,
- VlPomas,
- Gastrinomas,
- Medullary Carcinoma Thyroid (Calcitonin)
- Bile acids (endogenous laxatives)

Bowel resection / disease or fistula
Addison's Disease
Congenital Electrolyte Absorption defects
Chronic Alcohol Ingestion
Diabetic Diarrhea

Steatorrheal Diarrhea

Intraluminal maldigestion

- Pancreatic exocrine insufficiency,
- Bacterial overgrowth,
- Bariatric surgery,
- Liver disease

Mucosal malabsorption

- Celiac sprue,
- Whipple's disease,
- Infections,
- Abetalipoproteinemia,
- Ischemia

Postmucosal obstruction
(1° or 2° lymphatic obstruction)

1041. Anominal aphasia is due to defect in

a) Left inferior frontal

b) Parietal

c) Temporal occipital

d) Cerebellum

Correct Answer - C
Answer- C. Temporal occipital
Anomia can be genetic or caused by damage to various parts of the parietal lobe or the temporal lobe of the brain by an accident or stroke, or a brain tumor.

1042. Unable to consolidate long term memory. Which lobe of the brain is involved

a) Frontal

b) Parietal

c) Temporal

d) Occipital

Correct Answer - C
Answer- C. Parietal
Medial temporal lobe is the area of brain responsible for consolidation, i.e. processing of short term memory into long term memory.

1043. Gerstmanns syndrome all except

a) Acalculia

b) Agraphia

c) Aphasia

d) Agnosia

Correct Answer - C
Answer- C. Aphasia
Gerstmann syndrome consists of :
1. Agraphia
2. Acalculia
3. Finger agnosia
4. Left right disorientation

1044. Lateral medullary syndrome is caused by thrombosis of:

a) Anterior inferior cerebral artery

b) Posterior inferior cerebellar artery

c) Vertebral artery

d) b and c

Correct Answer - D

Answer is C > B (Vertebral artery > Posterior inferior cerebellar artery):

`Most cases result from ipsilateral vertebral artery occlusion; in the reminder occlusion of posterior inferior cerebellar artery is responsible' – Harrison

Vessel occlusion that result in Lateral Medullary syndrome:

- Vertebral (most common)
- Posterior inferior cerebellar (2nd most common)
- Superior, middle or Inferior lateral medullary arteries

Vertebral artery

- The vertebral artery consists of four segments. The fourth segment courses upward to joint the other vertebral artery to form the basilar artery.
- Only this segment gives rise to branches that supply the brainstem and cerebellum.
- Embolic occlusion or thrombosis of the fourth segment is responsible for this syndrome Q

Posterior inferior cerebellar artery

- Posterior inferior cerebellar artery in its proximal part supplies the lateral medulla and in its distal branches the inferior surface of

cerebellum.

1045. Pontine hemorrhage most common cause is

a) Hypertension

b) Diabetes

c) Trauma

d) Aneurysmal rupture

Correct Answer - A
Answer- A. Hypertension
Most common cause of pontine hemorrhage is hypertension.

1046. An adult hypertensive male presented with sudden onset severe headache and vomiting. On examination, there is marked neck rigidity and no focal neurological deficit was found. The symptoms are most likely due to:

a) Intracerebral parenchymal hemorrhage

b) Ischemic stroke

c) Meningitis

d) Subarachnoid hemorrhage

Correct Answer - D

Ans. d. Subarachnoid hemorrhage

The most likely diagnosis here is a **subarachnoid bleed (SAH).**

- The most common cause is **trauma** and is managed conservatively. The second most common cause is a rupture of a berry aneurysm.
- The typical presentation of a subarachnoid hemorrhage includes a '**thunderclap' headache.**
- Meningitic features of **neck stiffness** and **photophobia** often develop over hours.
- Computed tomography **(CT)** is the investigation of choice.
- **Lumbar puncture** should be performed if the CT scan fails to establish the diagnosis of SAH; it shows a **xanthochromic** blood picture.
- Delayed ischemic neurological deficit **(DIND)** is attributed to vasospasm of the cerebral vasculature typically developing 3–10 days following ictus. It is the **main cause of a poor outcome.**

- **Endovascular treatment** ("coiling") is generally preferred over craniotomy and clipping for aneurysms amenable to this approach.

1047. Predominantly sensory neuropathy is/are caused by:

a) Cisplatin

b) Pyridoxine excess

c) Suramin

d) a and b

Correct Answer - D
Answer **is** A and B (Cisplatin and Pyridoxine excess):
Cisplatin and Pyridoxine are associated with predominantly sensory neuropathies.

1048. Daily temperature variation in remmitent fever is

a) < 0.5 C

b) > 1°C

c) < 1.0 C

d) > 2 C

Correct Answer - B

Answer- B. > 1°C

Continuous fever

- Temperature remains above normal throughout the day and does not fluctuate more than 1°C in 24 hours. Intermittent fever
- The temperature elevation is present only for a certain period, later back to normal e.g. malaria, kala azar septicaemia.

1049. Hyperthermia

a) Temperature > 41.5

b) > 40 with autonomic dysfunctuion

c) No change in hypothalamic thermostat

d) Failure of thermoregulation

Correct Answer - D
ANswer- D. Failure of thermoregulation
Hyperthermia is defined as elevation of core body temperature above the normal diurnal range of 36 to 37.5°C due to failure of thermoregulation at the level of hypothalamus.
Hyperthermia is not synonymous with the more common sign offever, which is induced by cytokine activation during inflammation, and regulated at the level of the hypothalamus.

1050. Myasthenia gravis is associated with

a) Antibodies against Ach receptors

b) Decreased myosin

c) Absent troponin C

d) Increased myoneural junction transmission

Correct Answer - A
Answer- A. Antibodies against Ach receptors
The characteristic pathological feature of myasthenia gravis is presence of antibodies against acetyl choline receptors.
These autoantibodies against the acetylcholine receptors lead to loss of functional acetylcholine receptors at the neuro muscular junction.

1051. Eaton Lambert syndrome is seen with -

a) Ca breast

b) Ca liver

c) Ca lung

d) CNS tumors

Correct Answer - C
Answer- C. Ca lung
Paraneoplastic syndrome
Associated with
Small cell carcinoma lung
Certain autoimmune diseases

1052. Lesion of globus pallidus causes

a) Chorea

b) Athetosis

c) Hemibalismus

d) Flexion dystonia

Correct Answer - B

Answer- B. Athetosis

- Athetosis- Globus pallidus (mainly) and Subthalamic nucleus.
- **Lesion at the globus pallidus and striatum** cause **athetosis,** which is characterized by continuous, **slow** writhing movements.
- Chorea: **rapid**, involuntary dancing movements → Most commonly, the lesion is in the striatum.
- Ballism: involuntary flailing, intense and violent movements. The movements are of large amplitude and predominantly involves proximal muscles.
- The lesion in the subthalamic nucleus.
- Athetosis: continuous, **slow** writhing movements → Lesion at globus pallidus and striatum.

1053. Most common tumor associated with NF 1

a) Optic glioma

b) 2nd nerve schwannoma

c) Astrocytoma

d) Bilateral acoustic neuroma

Correct Answer - A
Answer- A. Optic glioma
"Optic pathway gliomas" are the predominant type of neoplasm associated with neurofibromatosis type I but other central nervous system and non CNS tumours can occur.

1054. CSF picture in viral meningitis

a) Lymphocytic pleocytosis

b) WBC count > 1500/mL

c) Sugar is reduced

d) Protein is decreased

Correct Answer - A

Answer- A. Lymphocytic pleocytosis

	Normal	**Bacterial**	**Viral**
Opening Pressure	**7-18**	>30	Normal or Mildly Incre
Appearance	Clear, Colorless	Turbid	Clear
Protein (mg/dl)	23-38	Increased	Normal to Decreased
Glucose (mmol/L)	2/3rds Serum Glucose	Decreased	Normal
Gram Stain	Negative	Positive 160-90% of Cases)	Negative
Glucose CSF: Serum Ratio	0.6	<0.4	>0.6
White Cell Count	**cells**	Predominately Neutrophils	Predominately Lymph

1055. In herpes encephalitis A/E

a) Focal symptoms common

b) Temporal lobe involved

c) MRI is diagnostic

d) EEG not diagnostic

Correct Answer - D
Answer- D. EEG not diagnostic
Diagnosis

- Most sensitive and specific investigation for HSV-1 encephalitic is MRI
- In contrast, cranial CT scans have only 50% sensitivity and that too early in the disease. EEG findings in HSV-1 encephalitis

1056. Which of the following is not seen in Hereditary Spherocytosis

a) Direct Coomb's Positive

b) Increased Osmotic Fragility

c) Splenomegaly

d) Gall stones

Correct Answer - A
Ans. is 'a' i.e., Direct Coomb's positive
Hereditary Spherocytosis

- Membrane cytoskeleton that lies closely opposed to the internal surface of the plasma membrane, is responsible for elasticity and maintenance of RBC shape.

Membrane skeleton consists *:?*

Spectrin → The chief protein component responsible for biconcave shape.
Ankyrin and band 4-2 → Binds spectrin to band 3
Band 3 → A transmembrane ion transport protein.
Band 4·1 → Binds spectrin to glycophorin A, atransmembrane protein.

- Hereditary spherocytosis is an autosomal dominant disorder characterized by intrinsic defects in red cell membrane. This results in production of red cells that are sphere (spherocytes) rather than biconcave.
- The mutation *most commonly involves the gene coding for ankyrin,* followed by *Band-3 (anionic transport channel), spectrin,* and *Band 4·2 (also called palladin).*

Also know

Most common, defect in hereditary elliptocytosis is in spectrin

Pathogensis of Hereditary spherocytosis

- Loss of membrane cytoskeleton proteins (ankyrin, spectrin, Band 3, 4.2) results in reduced membrane stability. Reduced membrane stability leads to spontaneous loss of membrane fragments during exposure to shear stresses in the circulation. The loss of membrane relative to cytoplasm forces the cells to assume the smallest possible diameter for a given volume cells become microspherocytes.
- Because of their spheroidal shape and reduced membrane plasticity, red cells become less deformable and are trapped in to spleen as they are unable to pass through the interendothelial fenestrations of the venous sinusoids. In the splenic sinusoides, red cells are phagocytosed by RE cells Extravascular hemolysis.

Clinical features of Hereditory spherocytosis

The clinical features are those of extravascular hemolysis :

Anemia → Mild to moderate

Jaundice (Mainly indirect bilirubin) → Splenomegaly

Gall stones → Elevated excretion of bilirubin promotes formation of pigment stone.

Leg ulcer → Rare clinical manifestation.

Aplastic crisis → Triggered by parvo-virus infection.

Laboratory findings

- *S*pherocytosis --> Peripheral smear shows microspherocytes which are small RBCs without central pallor (Normally central 1/3 pallor is present in red cells).
- MCV4
- *MCHC* r
- Increased unconjugate biliru*bin*
- *Urine urobilinogen 1'*
- *Stool s*tercobilino*gen*
- *Reticulocytosis* **-4** As seen with any type of hemolytic anemia.
- *Hemoglobin 1*
- *Serum Heptoglobin* --> Nonnal to decreased.

- *Increased osmotic fragility on pink test.*
- *C*oomb's test is used to distinguish hereditary spherocytosis from autoimmune hemolytic anemias.
- Autoimmune hemolytic anemias *are coomb's positive_ whereas hereditary spherocytosis is coomb's negative.*

1057. Haemoglobin F is raised in:

a) Juvenile chronic myeloid leukemia

b) Hereditary spherocytosis

c) Congenital red cell aplasia

d) Mysthania gravis

Correct Answer - A

Answer **is** A (Juvenile **CML)**

Fetal Haemoglobin levels (HbF) are increased in most cases of Juvenile CML –

Causes of Raised HbF levels (Interpretation of Diagnostic Test 8th/411, 412)

- Haemoglobinopathies
  - β thalassemia major
  - β thalassemia minor
  - Sickle cell disease
- Hereditary Persistance of HbF
- Anemia:
  - Non Hereditary refractory normoblastic anemia
  - Pernicious anemia
  - Aplastic anemia
- Leukemia specially Juvenile Myeloid Leukemia
- Multiple myeloma
- Molar pregnancy
- Patients with Trisomy 13 or Trisomy 21 (Down's syndrome)
- Some chronic viral infections (eg CMV, EBV)

1058. Which of the following provide protection against malaria all except

a) Duffy blood group

b) Sickle cell anemia

c) Thalassemia

d) PNH

Correct Answer - D

Answer- D. PNH

Red cell surface antigen that offer protection against malaria

- Duffy blood group system
- ABO (H) blood group system
- Glycophorins
- Gerbich antigen
- Complement receptor type I
- Knops blood group

Abnormalities of the red cell cytoskeleton which may offer protection include

- South-east asia ovalocytosis Hereditary elliptocytosis
- Hereditary spherocytosis Sickle cell HbA/S

1059. Chemotherapeutic Agent of Choice for the treatment of CML is:

a) Imatinib

b) Vincristine

c) Cyclophosphamide

d) Methotrexate

Correct Answer - A

Answer is A (Imatinib):

Tyrosine Kinase Inhibitors (Imatinib) are the chemotherapeutic agents for choice in the management of CML. Tyrosine Kinase inhibitors target the 'constitutively active tyrosine kinase' implicated in the pathogenesis of CML. Although they do not cure the disease, these agents are able to achieve long term control of CML in the majority of patients. Most recent texts (Including Harrisons) recommend Tyrosine Kinase Inhibitors (Imatinib) as the initial treatment of choice for newly diagnosed CML reserving Allogeneic Stem Cell Transplantation (SCT) for those who develop Imatinib Resistance.

1060. Thrombotic thrombocytopenic purpura is a syndrome characterized by:

a) Thrombocytosis, anemia, neurologic abnormalities, progressive renal failure and fever.

b) Thrombocytopenia, anemia, neurologic abnormalities, progressive hepatic failure and fever

c) Thrombocytosis, anemia neurologic abnormalities, progressive renal failure and fever

d) Thrombocytopenia, anemia, neurological abnormalities, progressive renal failure and fever

Correct Answer - D
Answer is D (Thrombocytopenia, anemia, neurological abnormalities, progressive renal failure and fever)
Thrombotic Thrombocytopenic Purpura (TTP) is characterized clinically by the Pentad of Microangiopathic Hemolytic Anemia, Thrombocytopenia. Decreased Renal Function. Disturbed Neurological function and Fever.

1061. All the following are true about multiple myeloma *except:*

a) Osteolytic bone disease

b) t(8-14) translocation

c) Light chain proliferation

d) Bence-Jones proteins in urine

Correct Answer - B

Answer *is* B (t (8-14) translocation)

- A variety of chromosomal alterations have been found in patients with Multiple myeloma. The most common translocation is t (11; 14) (q 13; q32). 13q14 deletions and 17p13 deletions and 11 q abnormalities predominate. *Translocation 1(8-14) has not been mentioned.*
- Complete Immunoglobulin chain comprises of both heavy chains and light chains. But *in Multiple myeloma there is excess production of light chains* ^{e} over heavy chains.
- *These light chains are eliminated in urine as Bence Jones protein*^{Q}
- *Protein cast in urine are thus made up of light chains only* ^{Q} (not complete immunoglobulin chains).
- *Bone lesions in multiple myeloma are lytic in nature* and are rarely associated with osteoblastic new bone formation.' - *Harrison.*
- Bone lesions in MM are caused by the proliferation of tumor cells and activation of osteoclasts that destroy the bone. *'Bone pain is the most common symptom in MM affecting 70% of patients* ^{Q}*'-Harrison*

1062. The immunoglobulin most commonly involved in Multiple Myeloma is :

a) IgG

b) IgM

c) IgA

d) IgD

Correct Answer - A
Answer *is* A(IgG)
The M component in Multiple Myeloma can be made up of the immunoglobulins IgG, IgM, IgD, IgA, and IgE; light chains alone; or heavy chains alone. IgG Myeloma is the most common form of Multiple Myeloma while IgD (2%) and IgE (Rare) are the least common.

Distribution of immunoglobulin types in patients with multiple myeloma

Type of protein	Percentage (%)
IgG	52
IgA	22
IgM	12
IgD	2
IgE	Rare

1063. Initial Drug of choice for suspected case of acute adrenal insufficiency is:

a) Norepinephrine

b) Hydrocortisone

c) Dexamethasone

d) Fludrocortisones

Correct Answer - C
Answer is C (Dexamethasone):
The treatment of choice for acute adrenal insufficiency is Glucocorticoid Replacement Therapy. In cases where the diagnosis of acute adrenal insufficiency is suspected (not confirmed) Dexamethasone is preferred as the initial steroid of choice because Dexamethasone does not compete with the cortisol assay. Cosyntropin stimulation testing may be performed while the patient is on treatment.

1064. A pregnancy woman is diagnosed to suffering from Graves' disease. The most appropriate therapy for her would be:

a) Radioiodine therapy

b) Total thyroidectomy

c) Carbimazole parenteral

d) Propylthiouracil oral

Correct Answer - D

Answer is D (Propylthiouracil):

Propylthiouracil (PTU) is not associated with an increased risk of congenital malformations and is considered the drug of choice for treating hyperthyroidism is Pregnancy.

Hyperthyroidism in Pregnancy

- Maternal Hyperthyroidism in Pregnancy is usually due to Grave's Disease. TRAb crosses the placenta and if mother is thyrotoxic it must be assumed that the foetus is similarly affected
- The treatment of choice for thyrotoxicosis in Pregnancy is therapy with safe Antithyroid Drugs
- Thionamides (Carbimazole/Propylthiouracil) are equally effective in controlling Grave's Hyperthyroidism in Pregnancy and are considered the drugs of choice.
- Amongst Carbimazole (Methimazole) and Propylthiouracil, Propylthiouracil is typically the preferred agent (Traditional drug of choice)

Radioactive Iodine Therapy is contraindicated in pregnancy as it may destroy the fetal thyroid Thyroidectomy (Surgery) is rarely

required during Pregnancy. When indicated preoperative treatment with antithyroid drugs and iodine is undertaken and surgery is performed during the second trimester

Propylthiouracil

- *Effective in controlling Grave's Hyperthyroidism in Pregnancy*
- *Not associated with increased risk of congenital malformation (Aplasia Cutis Congenita has not reported with the use of Propylthiouracil))*
- *Considered the drug of choice for treatment of Hyperthyroidism in pregnancy*
- *Considered the drug of choice for mothers during Breast feeding (Transferred to the milk one tenth as much as Carbimazole)*
- *Effective in controlling Grave's Hyperthyroidism in Pregnancy*
- *Aplasia Cutis Congenita is a rare disorder reported in neonates of mothers who received Methimazole (Carbimazole) during pregnancy.*
  (Consensus: Insufficient data to establish a direct causal relationship)
- *Considered as an effective alternative where Propylthiouracil is not available or cannot be used for any reason*
- *May be used in mothers during breast feeding at a low dose (Transferred to milk more than Propylthiouracil but usually does not adversely affect the infant's thyroid function)*

1065. Richner-Hanhart syndrome is

a) Autosomal dominant

b) Occular and cutaneous features

c) Associated with abnormality in lipid metabolism

d) Normal mental function

Correct Answer - B
Answer- B. Occular and cutaneous features
Rare autosomal recessive disorder of tyrosine metabolism due to deficiency of the cytosolic fraction of hepatic tyrosine amino transferase.
Occurs due to deficiency of "Tyrosine amino transferase".
Mental retardation.
The patient has high urinary tyrosine levels along with high plasma tyrosine levels.
These patients responds dramatically to dietary restriction of the amino acids phenylalanine and tyrosine

1066. Investigation of choice in pheochromocytoma is:

a) CT scan

b) Urinary catecholamines

c) MIBG scan

d) MRI Scan

Correct Answer - B
Answer is B (Urinary Catecholamines):
Pheochromocytomas synthesize and store catecholamines which include norepinephrine, epinephrine and dopamine. *The investigation of choice for diagnosis of Pheochromocytomas is determination of elevated levels of catecholamines and their methylated metabolites (metanephrines) in the plasma and urine. CT scan, MRI and MBIG Scintography are all useful diagnostic modalities for localization of pheochromocytoma once the diagnosis is established.*

1067. The predominant symptom/sign of pheochromocytoma is:

a) Sweating

b) Weight loss

c) Orthostatic hypotension

d) Episodic hypertension

Correct Answer - D
Answer is D (Episodic Hypertension):
The predominant manifestation of Pheochromocytoma is Hypertension which classically presents as Episodic Hypertension (Sustained Hypertension and Orthostatic Hypotension may also be seen).
'The dominant sign is Hypertension. Classically patients have episodic hypertension, but sustained hypertension is also common' - Harrison

1068. Primary hyperparathyroidism is suggested by all of the following, except:

a) Increased serum calcium

b) Low urinary calcium

c) Increased PTH

d) Increased C-AMP

Correct Answer - B

Answer is B (Low Urinary Calcium):

Primary Hyperparathyroidism is associated with normal or increased urinary calcium levels.

Increased PTH and Increased Serum calcium in association with high levels of urinary calcium suggest a diagnosis of Primary Hyperparathyroidism

Increased PTH and Increased Serum calcium in association with low levels of urinary calcium suggest a diagnosis of Familial Hypocalciuric Hypercalcemia (FHH)

Disorder	S-Ca2±	S-PHOS	Intact PTH	PTHrP	Urine Calcium	Urinary Ca2+ Creatinine Clearance ratio
Primary HPTH	1'	sl, (or N)	1' (or N)	,I,	U-Ca2' > 100mg/24h	>0.02
Familial benign hypercalcemia	l'	.I(or N)	1' (or N)	,I,	U-Ca2+ <100mg/24h	<0.01

This clearance ratio is calculated from simultaneous fasting serum and urine Ca and creatinine measurements. The urine sample can be from a spot or a 24 h collection. The clearance ratio is calculated as follows:
Urine Ca (mg/24h)x plasma creatinine (mg/dl)/plasma Ca (mg/dL) x urine creatinine (mg/24h)

1069. The most classical symptom of VIPOMA is:

a) Gall stones

b) Secretory diarrhea

c) Steatorrhea

d) Flushing

Correct Answer - B

Answer is B (Secretory Diarrhoea)

The principle feature of VIPOMA is large volume secretory Diarrhoea.

Diarrhoea is secretory in nature, persists during fasting and is almost always greater than > I Litre per day (>3 Litres per day in 70 percent). A stool volume less than 700 ml per day is proposed to exclude the diagnosis. Most patients do not have accompanying Steatorrhea.

VIPOMAS *(Verner-Morrison Syndrome/ Pancreatic Cholera/WDHA Syndrome)*

VIPomas are tumours that secrete large amounts of Vasoactive Intestinal Peptide (VIP)

VIP is an important neurotransmitter ubiquitously present in the CNS and GIT

- The most common location of VlPomas is the Pancreas
- Most common site within the pancreas is the pancreatic tail
- Usually Solitary
- *Usually Malignant (37-68 % have hepatic metastasis at diagnosis*

VIP

Stimulates Small Intestinal chloride secretion

Stimulates smooth muscle contractility

Inhibits acid secretion
Has vasodilatory effects

Typical Features (WDHA)

Watery Diarrhoea (Large Volume Secretory Diarrhoea leading to dehydration)

Hypokalemia (Diarrhoea severe enough to cause hypokalemia)

Achlorhydria (Hypochlorhydria from increased small intestinal chloride secretion)

The principle Symptoms are large volume diarrhoea (100 %)
severe enough to cause hypokalemia (80-100%), dehydration
(83%), hypochlorhydria (54-76%) and flushing (20%)
Most patients do not have accompanying Steatorrhea

Other Features

- Increased stool Volume due to increased secretion of sodium and potassium which with the anion account for osmolality of the stool
- Hyperglycemia (25-50%
- Hypercalcemia (25-50%)

The diagnosis requires demonstration of an elevated plasma VIP level and the presence of large volume secretory diarrhea.

1070. Fabry's disease affects

a) ER

b) Lysosome

c) Mitochondria

d) Cell membrane

Correct Answer - B
Answer- B. Lysosome
Fabry disease, also called Anderson-Fabry disease, is the second most prevalent lysosomal storage disorder after Gaucher disease. It is an X-linked inborn error of the glycosphingolipid metabolic pathway. This results in accumulation of globotriaosylceramide (Gb3) within lysosomes in a wide variety of cells, thereby leading to the protean manifestations of the disease.

1071. Granulomatous condition causing hypercalcemia include all of the following, except:

a) TB

b) Sarciodosis

c) Berylliosis

d) SLE

Correct Answer - D
Answer is D (SLE):
SLE is not classified as a granulomatous disease and is a rare cause of Hypercalcemia (Disseminated SLE). Sarcoidosis, Tuberculosis (TB) and Berylliosis are typical Granulomatous disorders causing hypercalcemia.
Granulomatous causes of Hypercalcemia
Infective Causes

- Tuberculosis
- Berylliosis
- Histoplasmosis
- Coccidoimycosis
- Pneumocystis
- Granulomatous Leprosy
- Cat-Scratch Disease

Non-Infective Cause

- Sarcoidosis (Most common)
- Wegner's Granulomatosis
- Inflammatory Bowel Disease
- Histiocytosis-X

- Foreign body Granulomas
  Almost every single disease associated with Granuloma formation has been reported to cause Hypercalcemia

1072. Hypophosphatemia is seen in:

a) Pseudohypoparathyroidism

b) Hyperparathyroidism

c) Hyperthyroidism

d) Hypoparathyroidism

Correct Answer - B
Answer is B (Hyperparathyroidism):
Hyperparathyroidism is typically associated with hypophosphatemia.
Primary Hyperparathyroidism is associated with Hypophosphatemia and Hypercalcemia while Secondary Hyperparathyroidism is associated with Hypophosphatemia and Hypocalcemia.
Hyperthyroidism is typical associated with normal phosphate levels
Hypoparathyroidism and Pseudohypoparathyroidism are associated with Hyperphosphatemia

1073. Calcium homeostasis disturbance is seen in

a) Malignant hyperthermia

b) DMD

c) Tibial muscular dystrophy

d) Limb girdle muscle dystrophy

Correct Answer - A
Answer- A. Malignant hyperthermia
Malignant hyperthermia is a pharmacogenetic condition caused due to mutation of the "Ryanodine receptor gene".
Ryanodine receptor gene controls the level of "cytosolic calcium" and therefore skeletal muscle contraction.

1074. Tetany is seen in

a) Respiratory alkalosis

b) Respiratory acidosis

c) Metabolic acidosis

d) Hyperkalemia

Correct Answer - A
Answer- A. Respiratory alkalosis
In alkalosis tetany occurs because of the decreased concentration of free ionized calcium.
It is the free ionized calcium that is physiologically more important.
[Ref Harrison 18th/e p. 362, 360; Guyton 10thie p. 342]

1075. Hypomagnesemia is not seen in

a) Barters syndrome

b) Diabetes mellitus

c) Diarrhea

d) Gitelman syndrome

Correct Answer - A
Answer- A. Barters syndrome
Hypomagnesemia may occur in Barter's syndrome but usually the serum magnesium level is normal in Barters syndrome.

1076. Features of SLE include all of the following except:

a) Recurent abortion

b) Sterility

c) Coomb's positive hemolytic anemia

d) Psychosis

Correct Answer - B
Answer is B (Sterility):
Systemic Lupus Erythematosus.
Recurrent Abortions in SLE may be seen as a manifestation of Antiphospholipid Antibody syndrome. Small proportion of patients with SLE may have a Coomb's Positive Haemolytic anemia. Psychosis is a known neurological manifestation of SLE.

1077. Antibodies most commonly seen in drug induced lupus are:

a) Anti ds DNA Antibodies

b) Anti Sm Antibodies

c) Anti-Ro Antibodies

d) Antihistone Antibodies

Correct Answer - D
Answer is D (Antihistone Antibodies):
The most commonly used marker for drug induced lupus is Antihistone Antibodies.
Drug Induced Lupus is characterized serologically by the presence of Anti-Histone Antibodies and the absence of antibodies against double stranded DNA (dsDNA Antibody Negative; Anti-Histone Antibody Positive). Anti-dsDNA
Serology in Drug Induced Lupus Erythematosus

- Almost all patients with Drug Induced Lupus will test positive for Antinuclear Antibodies (Positive ANA Test)
- The spectrum of Antinuclear antibodies in Drug Induced Lupus includes
- Positive Antihistone antibodies (most common; not specific; also seen in SLE)
- Positive autoantibodies against single stranded DNA (common ; not specific; also seen in SLE)
- Negative (absence of) autoantibodies against double stranded DNA(dsDNA)
- The presence of autoantibodies against dsDNA strongly suggests a diagnosis of SLE
- Drug Induced Lupus is typically associated with a Homogeneous

ANA pattern due to the presence of Antihistone Antibodies

Antibodies are seen in less than 5 percent of patients with Drug Induced Lupus

The presence of Antihistone antibodies alone is not a specific test for diagnosis of Drug Induced Lupus as Antibodies to histones may also be seen in up to 50 to 80 percent of patients with idiopathic SLE.

Note : *Hypocomplementemia is uncommon in Drug Induced Lupus but not in SLE.*

1078. Primary Sjogrens syndrome true is

a) Can be seen in children

b) Increased complement C4 leads to thymoma

c) Associated with rheumatoid arthritis

d) Salivary gland enlargement

Correct Answer - D

Answer- D. Salivary gland enlargement

Sjogren syndrome is a chronic disease characterized by dry eyes (keratoconjuctivitis sicca) and dry mouth (xerostomia) resulting from immunological mediated destruction of the lacrimal and salivary glands.

It occurs in two forms

1. Primary form (SICCA SYNDROME) → Occurs as an isolated disorder.
2. Secondry form → When it occurs in association with other autoimmune disorder. It is more common.

- Autoimmune diseases associated with sjogren syndrome
- Symptoms result from inflammatory destruction of the exocrine glands.

1. Keratoconjunctivitis
2. Xerostomia
3. Parotid gland enlargement

1079. Prophylaxis for HIV is optimally effective if started upto ..... hrs of exposure

a) 1

b) 2

c) 4

d) 12

Correct Answer - A
Answer- A. 1
goal is to start within one to two hours or earlier after exposure often using a starter pack with appropriate drugs as immediately available. The median time to initiation of postexposure prophylaxis is 1.8 hrs. The centre for disease control and prevention (CDC) recommendations are to offer prophylaxis upto 24-36 hrs after exposure, for longer time lapses, the recommendations is to seek advice from an expert

1080. Odd pair

a) Erythema marginatum-rheumatic fever

b) Erythema gyrens ripens-malignancy

c) Necrotic acral erythema-HCV

d) Erythema chronicum migrans malignancy

Correct Answer - D
Answer- D. Erythema chronicum migrans malignancy
"Erythema gyratum repens" is a rare and characteristic rash strongly associated with malignancy .
Erythema chromicum nigrans
Ergthema marginatum
It is a characteristic cutaneous manifestation of rheumatic fever.

1081. ANCA is NOT associated with which of the following diseases :

a) Wegener's granulomatosis

b) Henoch schonlein purpura

c) Microscopic PAN

d) Churg Strauss syndrome

Correct Answer - B

Answer is B (H.S. Purpura) :

H.S. purpura is not associated with any antinuclear cytoplasmic antibody (ANCA). It is an example of ANCA negative vasculitis.

- ANCA (Antineutrophilic cytoplasmic Antibodies) arc Antibodies directed against certain proteins in cytoplasmic granules of Neutrophil & monocytes.
- These are two major categories of ANCA based on different targets for the antibodies.

ANCA (Antineutrophic cytoplasmic antibodies):

ANCA *is* of 2 types

C-ANCA

(Cytoplasmic *proteinase 3*^{q} is the target antigen)

Wegeners Granulomatosis^{q} (90-95%)

P-ANCA

(perinuclear *myeloperoxidase*^{Q} is the major target antigen)

- Microscopic PAN (microscopic polyangitis)
- Churg-Strauss syndrome
- Crescenteric glomerulonephritise
- Good pasteur's syndrome

1082. Yellow-nail syndrome consists of

a) Knee joint effusion and lymphedema, associated with discolored nails

b) Pericardial and lymphedema, associated with discolored nails

c) Peritoneal effusion and lymphedema, associated with discolored nails

d) Pleural effusion and lymphedema, associated with discolored nails

Correct Answer - D

Answer- D. Pleural effusion and lymphedema, associated with discolored nails

Yellow nail syndrome is a rare disorder of the nail, which is usually accompanied by

Lymphoedema

It may also be associated with :

- Recurrent pleural effusions
- Bronchiectasis

1083. Not to be given in malignant malaria is -

a) Quinolone

b) Quinine

c) Doxycycline

d) Artesunate

Correct Answer - A
Answer- A. Quinolone
Artemisinin derivative : Artesunate
Quinine or Quinidine
Plus one of the following : Doxycycline, Tetracycline and Clindamycin

1084. Muir–Torre syndrome shows

a) Sebaceous keratomas

b) Lisch nodules

c) Intestinal polyp

d) Hyperelastic joints

Correct Answer - A

Answer- A. Sebaceous keratomas

Muir - Torre syndrome is an autosomal skin condition of genetic origin characterized by tumors of the sebaceous gland or keratoacanthoma that are associated with visceral malignant disease

Cutaneous characteristic

- Adenoma
- Epithelioma
- Carcinoma
- Multiple keratoacanthomas

1085. DOC for listeria meningitis -

a) Ampicillin

b) Cefotaxime

c) Cefotriaxone

d) Ciprofloxacin

Correct Answer - A

Answer- A. Ampicillin

- The antibiotic of choice for listeria infection is ampicillin or penicillin G.

1086. Kawasaki disease is associated with all of the following clinical features *except*

a) Truncal rash

b) Posterior cervical lymphadenopathy

c) Thrombocytopenia

d) Pericarditis

Correct Answer - C
Answer is C (Thrombocytopenia) :
Kawasaki disease is associated with thrombocytosis and not thrombocytopenia.
Characteristic laboratory findings Treatment of Choice Prognosis include
Increased ESR *High dose intravenous immunoglobulinse* *Thrombocytosise* *Prognosis for uneventful recovery is excellente*

1087. First symptom of leprosy

a) Decreased vibration & position sense

b) Decreased pain

c) Decreased temperature

d) Decreased light touch

Correct Answer - B
Answer- B. Decreased pain
In 90% of patients the first sign of the disease is a feeling of numbers which may preceedes skin lesions by a number of years . Temperature is the first sensation lost followed by light tourch pain and then deep pressure.
[Ref Harrison 18thie p. 1363-1364]

1088. Lupus Pernio is seen in:

a) Tuberculosis

b) SLE

c) PAN

d) Sarcoidosis

Correct Answer - D
Answer *is* D (Sarcoidosis):
Pernio is a typical cutaneous manifestation of Sarcoidosis.
Lupus Pernio is the most typical and easily recognizable skin lesions of Sarcoidosis. It is characterized by the presence of violaceous, purple blue shiny swollen lesions over the bridge of nose, beneath the eyes and over the cheeks. This specific complex of involvement of the bridge of nose, the area beneath the eyes and the cheeks is considered diagnostic for a chronic form of Sarcoidosis.

1089. Migraine is due to

a) Dilatation of cranial arteries

b) Constriction of cranial arteries

c) Cortical spreading depression

d) Meningial inflammation

Correct Answer - C

Answer- C. Cortical spreading depression

Cortical spreading depression is a self propagating wave of neuronal and glial depolarization that spreads across the cerebral cortex. The activation of trigeminal afferents by cortical spreading depression in turn causes inflammatory changes in the pain-sensitive meninges that generate the headache of migraine through central and peripheral reflex mechanisms.

1090. How much length is increased in Z plasty when it is done at 60 degrees?

a) 25%

b) 50%

c) 75%

d) 100%

Correct Answer - C

Ans is 'c' i.e. 75%

- Z-plasty is a very common interposition surgical technique utilized in plastic and reconstructive surgery to revise scars.
- In general, the greater the angle, the greater the gain in wound length.

Tissue Lengthening with Z-Plasty

Type of Z-Plasty	Increase in Length of Central Limb (%)
Simple 45-degree	50
Simple 60-degree	75
Simple 90-degree	100
Four-flap with 60-degree angles	150
Double-opposing	75
Five-flap	125

Or

Angles compared to gain in length are as follows:
30-degree angle results in a 25% gain in length
45-degree angle results in a 50% gain in length
60-degree angle results in a 75% gain in length
75-degree angle results in a 100% gain in length
90-degree angle results in a 125% gain in length

1091. . Z plasty ideal angle

a) 90°

b) 45°

c) 60°

d) 75°

Correct Answer - C
Answer- C. 60°
The 60 degree Z-plasty (ie, classic Z-plasty) is most commonly used because it provides the optimal balance between lengthening and ease of closure.

1092. All of the following are risk factors for deep vein thrombosis (DVT) except -

a) Duration of surgery more than thirty minutes

b) Obesity

c) Age less than forty years

d) Use of the oestrogen-progesterone contraceptive pills

Correct Answer - C
Ans. is 'c' i.e., Age less than 40 years

1093. Lymphedema precox all are true except

a) U/L

b) More common in men

c) Affects the legs

d) 2-35yrs of age

Correct Answer - B
Answer- B. More common in men
Primary lymphedema with age of onset b/w ages 1 year and 35 years.
MC forms of primary lymphedema.
Female : Male - 10 : 1
Swelling involves foot and calf.
Usually unilateral

1094. RTA with multiple fractures initial treatment would be -

a) Management of shock

b) Splinting of limbs

c) Airway management

d) Cervical spine protection

Correct Answer - C
Answer- C. Airway management
Management of trauma begins with primary survey.
The ATLS (Advanced Trauma Life Support) defines primary survey as assessment of the `A,B,C' i.e., Airway with cervical spine protection, Breathing and circulation.

1095. Best skin disinfectant for central line insertion is:

a) Povione iodine

b) Alcohol

c) Cetrimide

d) Chlorhexidine

Correct Answer - D
Ans is 'd' i.e. Chlorhexidine
"Chlorhexidine is now the disinfectant recommended for all catheter placement procedures and for routine site cleansing during dressing changes."- Comprehensive Hospital Medicine: An Evidence-Based And Systems Approach By Mark V. Williams, Scott A. Flanders, p320
"Use of antiseptic solution for skin disinfection at the catheter insertion site helps prevent catheter-related infection. Chlorhexidine-based solutions appear to be superior to both aqueous and alcohol-based povidone-iodine in reducing the risk for catheter colonization and catheter-related bloodstream infection. If there is a contraindication to chlorhexidine, tincture of iodine, an iodophor or 70 percent alcohol can be used as alternatives"-uptodate.com

1096. With blunt trauma all over body the amount of N2 & nitrogen end products lost/day

a) 35gm

b) 45gm

c) 55gm

d) 65gm

Correct Answer - A
Answer- A. 35gm
After injury, the initial systemic proteolysis, mediated primarily by glucocorticoides increases urinary nitrogen excretion to levels in excess of 30 gm/day.

1097. The following statement about keloid is true ?

a) They do not extend into normal skin

b) Local recurrence is common after excision

c) They often undergo malignant change

d) They are more common in whites than in blacks

Correct Answer - B
Ans. is 'b' i.e., Local recurrence is common after excision

- A keloid scar is defined as excessive scar tissue that extends beyond the boundaries of the original incision or wound.

Features-

- It continues to get worse even after 1 year and up to a few years.
- Severe itching is present
- Margin is tender
- Vascular, red, erythematous (immature blood vessels)
- Extends to normal tissues, has a claw-like process. Hence the name.

Risk factors-

- Black race
- Tuberculosis patients
- Incision over the sternum, ear lobe
- Equal in both sexes
- Hereditary and familial
- Vaccination sites, injection sites

Treatment-

- Injection of steroid preparation such as triamcinolone acetate (Kenacort) has been found to be extremely useful.

- It flattens the keloid. Intra keloidal excision and skin grafting are to be tried last.
- Recurrence is common. (Any form of excision has a high chance of recurrence)
- Care should be taken not to extend the incision on to the normal surrounding tissues.
- Silicone application
- Topical retinoids

1098. Indications for emergency thoracotomy are all of the following except

a) Major tracheobronchial injuries

b) Cardiac tamponade

c) Penetrating injuries to anterior chest

d) Tension Pneumothorax

Correct Answer - D

Answer- D. Tension Pneumothorax

Emergency thoracotomy is indicated after chest trauma in following conditions :

- Cardiac arrest (resuscitative thoractomy)
- Massive hemothorax (>1500 mL of blood through the chest tube acutely or > 200-300 ml/hr after initial drainage.
- Penetrating injuries of the anterior aspect of the chest with cardiac tamponade.
- Large open wounds of the thoracic cage.
- Major thoracic vascular injuries in the presence of hemodynamic instability

1099. Inverted Champagne bottle appearance is seen in

a) Varicose veins

b) DVT

c) Lipodermatosclerosis

d) Venous ulceration

Correct Answer - C

Answer- C. Lipodermatosclerosis

- The most commonly recognized form of lipodermatosclerosis (LDS), chronic LDS presence with induration and hyperpigmentation of the skin involving the one or both of the lower legs in a characteristic "inverted champagne bottle" appearance.
- Associated with venous insufficiency, LDS is most common in middle-aged women.

1100. 10 cm tumor on anterior surface of thigh, what is done to know to diagnosis

a) Incision biopsy

b) Excision biopsy

c) FNAC

d) USG

Correct Answer - A

Answer- A. Incision biopsy

Incisional biopsy is indicated when tissue samples are not obtained by FNAC or core needle biopsy as in deep tumors and for superficial soft tissue tumors > 3cm.

Excisional biopsy is indicated for easily accesible extremity or truncal lesions < 3cm.

1101. Best method to treat a large port-wine hemangioma is?

a) Radiotherapy

b) Tatooing

c) Excision with skin grafting

d) Pulsed dye Laser

Correct Answer - D
Pulsed dye Laser REF: Roxburgh's common Skin Diseases 17th edition page 194 & 205, Clinical Dermatology by John Hunter, John Savin & Mark Dahl 3' edition page 275
"Selective Photothermolysis or Pulsed dye laser is the treatment of choice for Portwine hemangioma"
Port-wine stains are crimson blotches in which there is marked capillary dilatation compared to a capillary angioma, which is a red nodule or plaque containing proliferating endothelial cells. The latter tend to flatten and disappear at puberty. Larger ones may cause problems from bleeding and/or erosion. Cavernous haemangiomata are larger and compressible, containing large vascular spaces. Occasionally a port-wine stain of the trigeminal area is associated with a vascular malformation of the leptomeninges on the same side, which may cause epilepsy or hemiparesis (the SturgeWeber syndrome), or with glaucoma.
Excellent results have been obtained with careful and time-consuming treatment with a 585-nm flashlamp-pumped pulsed dye laser. Treatment sessions can begin in babies and anaesthesia is not always necessary. If a trial patch is satisfactory, 40-50 pulses can be delivered in a session and the procedure can be repeated at 3-monthly intervals.

1102. Flash burn, tender, red & painful, which of the following type is the burn-

a) Scalded burn

b) First degree burn

c) Second degree burn

d) Fourth degree burn

Correct Answer - B

Answer- B. First degree burn

First degree burn (also k/a Superficial or Epidermal burn)

- These burns involve only the epidermis
- They do not blister,
- Are erythematous because of dermal vasodilation
- Blanch to touch (i.e. show capillary refilling)
- Are quite painful
- Heal without scarring in 5 to 10 days.
- They result in pain and reddening of the epidermis (outer layer of the skin).
- The clinical fearures are blistering and/or loss of the epidermis. The underlying dermis is pink and moist. The capillary return is clearly visible when blanched

1103. Vein used in bypass Surgery:

a) Great saphenous vein

b) Short saphenous vein

c) Femoral vein

d) Brachial vein

Correct Answer - A
In patients with occlusive coronary disease caused by atherosclerosis, the diseased arterial segment can be bypassed by inserting a graft consisting of a portion of the great saphenous vein. The venous segment is reversed so that its valves do not obstruct the arterial flow. Following removal of the great saphenous vein at the donor site, the superficial venous blood ascends the lower limb by passing through perforating veins and entering the deep veins. The great saphenous vein can also be used to bypass obstructions of the brachial or femoral arteries.

1104. Best gas used for creating pneumoperitonium at laparoscopy is :

a) **N2**

b) 02

c) CO_2

d) N_{20} Goniometer is used

Correct Answer - C
CO_2
CO, is the gas used to create pneumoperitoneum during laparoscopy.
Other option is - N_20 : But it is **expensive, less soluble in blood and** supports combustion.
Also know :

- Instrument used for creating pneumoperitoneum **is** veress needle.
Flow Rate of CO, for creating pneumoperitoneum **200 - 2000 ml/min &** pressure between **15 - 25 mm of Hg.**

1105. In a female abdominal intestinal perforation operated has serous discharge on 5th day with wound gap. What is your diagnosis

a) Wound dehiscence

b) Enterocutaneous fistula

c) Scroma

d) Peritonitis

Correct Answer - A
Answer- A. Wound dehiscence
Dehisence most often develops 7 to 10 days postoperatively but may occur anytime after surgery, from 1 to more than 20 days."- Sabiston

1106. Peritonitis

a) Neutrophils > 250mm3

b) WBC < 100/m1

c) Ascitis lactate level < 25 mg/dl

d) Ascitis fluid pH > 735

Correct Answer - A
Answer-A. Neutrophils > 250mm3
More than 250 neutrophills/cumm of ascitis fluid suggest an acute inflammatory process, the most common of which is spontaneous bacterial peritonitis.
An ascites lactate level of more than 25 mg/di was found to be 100% sensitive and specific in predicting active spontaneous bacterial peritonitis.

1107. In gastrectomy following occurs except -

a) Calcium deficiency

b) Steatorrhoea

c) Fe. deficiency

d) Fluid loss

Correct Answer - D
Answer is 'd' i.e. Fluid loss
Postgastrectomy complications
Anemia as a result of vitamin B12 or iron malabsorption and osteoporosis.
Iron deficiency anemia develops because removal of the stomach often leads to a marked decrease in the production of gastric acid.
Osteoporosis develops as a result of poor calcium absorption, another problem that occurs after gastric surgery.
Dumping syndrome
Diarrhoea- may be due to different reasons. associated with dumping syndrome post-vagotomy diarrhoea associated with fat malabsorption.
Fat malabsorption leading to steatorrhoea occurs due to acid inactivation of pancreatic enzymes or poorly coordinated mixing of food & digestive juices. Fat malabsorption leads to malabsorption of fat soluble vitamins i.e. A,D,E & K.
Pushing food from your stomach to your small bowel too quickly (dumping syndrome)
Acid reflux
Chest infections, including bronchitis and pneumonia
Internal bleeding

Nausea and vomiting
Stomach acid leaking into your esophagus, causing scarring and narrowing (stricture)
Vitamin deficiencies
Weight loss

1108. Treatment of choice in anorectal carcinoma

a) Chemoradiation

b) APRCombined surgery and radiotherapy

c) Chemotherapy alone

d) All

Correct Answer - B
Answer-B
Abdominal-perineal resection with colostomy was the **preferred** surgical procedure for most major cancers of the **anal** canal,

1109. Rectal prolapse surgery is

a) Rectal mucosal stapling

b) Mucosal resection

c) Placation/wiring

d) Rectopexy

Correct Answer - D
Answer- D. Rectopexy
Abdominal approach
1. Reduction of perineal hernia and closure of ced-de-sac (Moschowitz's operation)
2. Fixation of rectum either with a prosthetic sling (Ripstein and wells rectopexy) or by Suture Rectopexy.
3. Resection of redundant sigmoid colon ± rectal fixation (Resection rectopexy).

1110. Crohn's disease

a) Continous involvement

b) Sinus & fistula

c) Mesenteric lymphadenitis

d) Stud ulcer

Correct Answer - B
Answer- B. Sinus & fistula
Clinical features-

- Intermittent mild diarrhea, fever, abdominal pain (MC)
- Right lower quadrant mass, weight loss, anemia
- Sometimes mimics appendicitis or bowel perforation
- Anal complaints (fissure, fistula, abscess) – frequent
- Fat/vitamin malabsorption present

1111. Step ladder pattern of gas shadow is seen in

a) Duodenal obstruction

b) Intestinal obstruction

c) Gastric outlet obstruction

d) Sigmoid volvulus

Correct Answer - B
Answer- B. Intestinal obstruction
Stepladder sign represents the appearance of gas-fluid distended small bowel loops that appear to be stacked on top of each other, typically observed on erect abdominal radiographs in the setting of small bowel obstruction.

1112. What is not seen in short bowel syndrome

a) Hypergastrinemia & high gastric secretion is seen

b) Diarrhea, dehydration and malnutrition

c) Hirsutism

d) Chronic TPN dependence

Correct Answer - C

Answer- C. Hirsutism

Resection of jejunum is better tolerated than resection of ileum, as the capacity for bile salt and vitamin B12 absorption is specific to the ileum

Malabsorption after massive small bowel resection is exacerbated by a characteristic hypergastrinemiaassociated gastric acid hypersecretion that persists for 1 to 2 years postoperatively

Short-bowel syndrome is a disorder clinically defined by malabsorption, diarrhea, steatorrhea, fluid and electrolyte disturbances, and malnutrition.

1113. **Esophageal manometry is useful all this conditions EXCEPT:**

a) Achalasia

b) Diffuse esophageal spasm

c) To assess the peristaltic integrity prior to the surgery for GERD

d) Malignancy

Correct Answer - D

Esophageal manometry, or motility testing, entails positioning a pressure sensing catheter within the esophagus.

Manometry is used to diagnose

1. Motility disorders (achalasia, diffuse esophageal spasm)
2.To assess peristaltic integrity prior to the surgery for reflux disease.

Esophageal malignancy is not diagnosed with esophageal manometry. Upper GI endoscopy is the effective method for malignancy and biopsy can be taken.

Ref: Harrison, Edition-18,Page-2430

1114. Ogilvie's syndrome most commonly involves

a) Stomach

b) Colon

c) Gallbladder

d) Small intestine

Correct Answer - B
Answer- B. Colon
Ogilvie syndrome, or acute colonic pseudo-obstruction (ACPO), is a clinical disorder with the signs, symptoms, and radiographic appearance of acute large bowel obstruction with no evidence of the actual physical cause of the obstruction. The colon may become massively dilated; if not decompressed, the patient risks perforation, peritonitis, and death.
Pseudo-obstruction most commonly occurs in hospitalized patients and is associated with the use of narcotics, bed rest, and co-morbid disease.
This condition describes an obstruction, usually of the colon, that occurs in the absence of a mechanical cause or acute intra-abdominal disease.
Abdominal radiographs show evidence of colonic obstruction, with marked cecal distension being a common feature.

1115. Spigelian hernia is

a) Through linea alba

b) Through lateral border of rectus abdominis

c) Through medial wall of iinguinal canal

d) Through lateral wall of inguinal canal

Correct Answer - B
Answer- B. Through lateral border of rectus abdominis
Spigelian hernias can occur anywhere along the length of the spigelian line or zone — an aponeurotic band of variable width at the lateral border of the rectus abdominis. The most frequent location of these rare hemias is at or slightly above the level of the arcuate line.
Spigelian hernia occurs through the linear semilunaris which corresponds to the lateral margin of the rectus abdominis.
A spigelian hernia occurs through the spigelian fascia, which is composed of the aponeurotic layer between the rectus muscle medially and the semilunar line laterally.

1116. Most common type of Intussusception is -

a) Ileocolic

b) ileoileal

c) Colo-colic

d) Caeco-colic

Correct Answer - A
Ans. is 'a' i.e., Ileocolic

- Ileo-ileo-colic (-12)
- Ileoileal (-5%)
- Colocolic (-2%)
- Multiple (1%)
- Retrograde

The **most common type of intussusception** is ileocolic (also known as ileocecal) (90%).

1117. 24 day neonate with projectile vomiting & failure to gain weight .what is the diagnosis

a) CHPS

b) NEC

c) Duodenal atresia

d) Hirschsprung's disease

Correct Answer - A
Answer- A. CHPS
Projectile vomiting in 4th week is quite suggestive of CHPS. In duodenal atresia the vomiting (usually bilious) is right from the 1st day of life. NEC and Hirschsprung's disease have different clinical presentation.

1118. Not true about Barrett's esophagus

a) Metaplasia of cells

b) Predisposes to SCC

c) Precancerous condition

d) Intestinal type is the most common type

Correct Answer - B
Answer- B. Predisposes to SCC
Barrett's esophagus is premalignant condition for adenocarcinma esophagus and not SCC.

1119. Gastrotomy is

a) Open the stomach closed after tube insertion

b) Opening the stomach

c) Resecting the terminal part of stomach

d) Resecting the proximal part of stomach

Correct Answer - B
Answer- B. Opening the stomach
Gastrostomy refers to a surgical opening into the stomach.; creation of an artificial external opening into the stomach for nutritional support or gastrointestinal compression. Typically this would include an incision in the patient's epigastrium as part of a formal operation.

1120. Parrot beak appearance is seen in

a) Volvulus

b) Intussuption

c) Rectal atresia

d) CA colon

Correct Answer - A
Answer- A. Volvulus
Barium/gastrograffin enema - demonstrates the point of obstruction, pathognomonic "Bird beck deformity" or parrot beak deformity. Contrast enema is contraindicated if gangrene is suspected.
"Parrot beaked" clawing of neils is also seen in chronic cocaine abuse.

1121. Raspberry tumor is seen in

a) Umbilical fistula

b) Meckel’s diverticulum

c) Umbilical adenoma

d) Umbilical granuloma

Correct Answer - C

Answer- C. Umbilical adenoma

- **An umbilical adenoma** is also known as **“Raspberry tumor”.**
- It is due to a partially **unobliterated vitellointestinal duct**.
- It is seen in **infants.**
- The **prolapsing mucosa gives the raspberry appearance and bleeds on touch.**
- **Treatment:**
  - A ligature is tied around its base, and it falls off after a few days.
  - Recurrence is treated with surgery.

1122. After mastectomy, breast reconstruction is done by

a) Deltopectoral

b) latissimus dorsi

c) Serratus anterior

d) Trapezius

Correct Answer - B

Answer- B. latissimus dorsi

If the skin at the mastectomy site is poor (e.g. following radiotherapy) or if a larger volume of tissue is required, a musculocutaneous flap can be constructed either from the latissimusdorsi muscle (an LD flap) or using the transversusabdominis muscle (a TRAM flap as). The latter gives an excellent cosmetic result in experienced hands but is a lengthy procedure and requires careful patient selection.

1123. Peau de orange appearance of Ca breast, what is the stage

a) T4b

b) T4a

c) T3a

d) T3b

Correct Answer - A
Answer- A. T4b
Stage I : $T_1N_0M_0$
Stage IIa : $T_0N_1M_0$;$T_1N_1M_0$;$T_2N_0M_0$.
Stage IIb : $T_2N_1M_0$;$T_3N_0M_0$
Stage IIIa : $T_0N_2M_0$;$T_1N_2M_0$;$T_2N_2M_0$;$T_3N_1M_0$;$T_3N_2M_0$
Stage IIIb : $T_4N_0M_0$;$T_4N_1M_0$;$T_4N_2M_0$
Stage IIIc : Any TN_3M_0
Stage IV : Any T,any N,M
Early breast cancer___ Stage I and **11J1N1,1-2N1;13NO Locally advanced breast cancer** (LABC)—Stage 111AI **Metastatic breast cancer—Stage** IV

Primary tumor (T)
TX- Primary tumor cannot be assessed

T0- No evidence of primary tumor

Tis- Carcinoma in situ

Tis (DCIS)- Ductal carcinoma in situ

Tis (Paget)- Paget disease of the nipple NOT associated with invasive carcinoma and/or carcinoma in situ (DCIS) in the underlying breast parenchyma. Carcinomas in the breast parenchyma associated with Paget disease are categorized on the basis of the size and characteristics of the parenchymal disease, although the presence of Paget disease should still be noted

T1-Tumor ≤ 20 mm in greatest dimension

T1mi- Tumor ≤ 1 mm in greatest dimension

T1a- Tumor > 1 mm but ≤ 5 mm in greatest dimension (round any measurement >1.0-1.9 mm to 2 mm)

T1b- Tumor > 5 mm but ≤ 10 mm in greatest dimension

T1c- Tumor > 10 mm but ≤ 20 mm in greatest dimension

T2- Tumor > 20 mm but ≤ 50 mm in greatest dimension

T3- Tumor > 50 mm in greatest dimension

T4- Tumor of any size with direct extension to the chest wall and/or to the skin (ulceration or skin nodules), not including invasion of dermis alone

T4a- Extension to chest wall, not including only pectoralis muscle adherence/invasion

T4b- Ulceration and/or ipsilateral satellite nodules and/or edema (including peau d’orange) of the skin, which do not meet the criteria for inflammatory carcinoma

T4c- Both T4a and T4b

T4d- Inflammatory carcinoma

1124. What is true about HER2/neu overexpression in Ca breast:

a) Good prognosis

b) Responds well to taxanes

c) Responds well to monoclonal antibodies

d) Seen only in breast cancer

Correct Answer - C
Ans is 'c' i.e. Responds well to monoclonal antibodies
The **HER2** receptor (previously called HER2/neu, or ERBB-2 receptor) belongs to the epidermal growth factor receptor (EGFR) family of receptors, which are critical in the activation of subcellular signal transduction pathways controlling epithelial cell growth and differentiation and possibly angiogenesis.
Amplification of HER2 or overexpression of its protein product is observed in 18 to 20 percent of human breast cancers.
HER2 overexpression is also noted in other tumors such as esophagogastric tumors, lung, ovary & head and neck squamous cell ca. (In all of these sites, HER2 overexpression has been identified as a negative prognostic factor.)
Following points are to be noted about HER2 overexpression in breast Ca:
Prognostic value of HER2 — HER2 overexpression is a poor prognostic marker. HER2 overexpression is associated with high rates of disease recurrence and death in the absence of adjuvant systemic therapy.
Predictive value of HER2 — HER2 status predicts response to specific therapies:

- Patients with high levels of HER2 expression benefit from treatment

with agents that target HER2, such as trastuzumab (a monoclonal antibody) and lapatinib.

- HER2 status appears to predict resistance or sensitivity to different types of chemotherapeutic agents, including anthracyclines and taxanes.

Women whose tumors overexpress HER2 appear to derive greater benefit from anthracycline-based adjuvant therapy than from adjuvant therapy that is alkylating agent-based, such as CMF (cycl ophosphami de, methotrexate, fluorouracil).

Relationship between HER2 overexpression and taxanes is still under study with various studies giving conflicting reports.

HER-2 positivity is associated with resistance to endocrine therapies.

Scoring of HER-2 Immunohistochemistry Assays

Score	HER-2 Status	Staining Pattern
0	**Negative**	**No staining** or membrane **staining in <10%** of tumor cells°
1+	**Negative**	• A **faint barely perceptible membrane staining** is **detected in >10%** of tumor cells. The cells are only stained in part of the membrane°.
2+	Equivocal	• Weak **to moderate complete membrane staining** is seen in **>10%** of tumor cells or **<30% with strong staininga**
3+	Positive	• **Strong complete membrane staining** is seen in **>30%** of tumor cells°

1125. Not a component of triple test in detection of Ca breast-

a) Breast self examination

b) USG/ mammography

c) FNAC/ trucut biopsy

d) Clinical examination

Correct Answer - A
Answer- A.Breast self examination
Triple assessment includes examination by a clinician. Self examination is not a part of triple assessment.
Bailey and Love writes — "In any patient who presents with a breast lump or other symptoms suspicious of carcinoma, the diagnosis should be made by a combination of clinical assessment, radiological imaging and a tissue sample taken for either cytological or histological analysis, the so called triple assessment. The positive predictive value (PPV) of this combination should exceed 99.9%."

1126. Treatment for hydroureter

a) Antibiotic prophylaxis alone

b) Immediate ureterolithotomy

c) Endoscopic ureteral stenting

d) Urinary alkalization

Correct Answer - C
Answer- C. Endoscopic ureteral stenting
Hydroureter is mainly caused by intrinsic and extrinsic obstruction of ureter. Causes are - Calculi (ureteric/VVJ) - intrinsic stricture and Retroperitoneal fibrosis - extrinsic.

1127. Diversion of urine is best done at

a) Ileum

b) Jejunum

c) Caecum

d) Colon

Correct Answer - A
Answer- A. Ileum
Ileal segment is the best for urinary diversion after cystectomy.
Still better method is "Continent cutaneous diversion" method.
But the best method is "Orthotopic neobladders".

1128. Ureterosigmoistomy

a) Hyperchloremic with hypokalemic acidosis

b) Hyperkalemia

c) Metabolic alkalosis

d) Hyponatremia

Correct Answer - A
Answer- A. Hyperchloremic with hypokalemic acidosis
There is hyperchloremic metabolic acidosis with hypokalemia.

1129. Injury to penis which of the following prevents extravasation of blood –

a) Bucks fascia

b) Fascia of camper

c) Fascia transversalis

d) None

Correct Answer - A
Answer- A. Bucks fascia
Superficial to tunica albuginea there is Buck's facia (deep layer of superficial fascia of penis), a prolongation of colle's fascia (membranous layer of superficial fascia of perineum).
If Buck's facia remains intact, hematoma is restricted to penile shaft only causing egg-plant deformity.
If Buck's fascia is disrupted, hematoma can extend to scrotum, perineum and suprapubic regions.

1130. Phimosis is associated with

a) Paraphimosis

b) Meatal stenosis

c) Balanoposthitis

d) Hypospadias

Correct Answer - C
Answer- C. Balanoposthitis
Phismosis caused due to
chronic infection
Congenital
Acquired- trauma, Penis Ca and Balanitis
Pathological phimosis (as opposed to the natural non-retractability of the foreskin in childhood) is rare and the causes are varied. Some cases may arise from balanitis (inflammation of the glans penis). Phimosis may occur after other types of chronic inflammation (such as balanoposthitis), repeated catheterization, or forcible foreskin retraction.
Phimosis may also arise in untreated diabetics

1131. Circumcision is contraindicated in

a) Balanitis

b) Hypospadias

c) Paraphimosis

d) Exostrophy of bladder

Correct Answer - B
Answer- B. Hypospadias
Circumcision is not done in patients with hypospadias as the prepuce can later be used in surgical repair.
Circucision is mostly done for cultural reasons.
The medical indications for circumcision are:
Phimosis & Paraphimosis
Recurrent balanoposthitis (i.e. inflammation of the foreskin)
Recurrent urinary tract infection

1132. Which is not true about cancer of tongue

a) Adenocarcinoma most common

b) Lateral surface involved

c) Deep cervical lymph nodes not involved

d) Tobacco is the cause

Correct Answer - A

Answer- A. Adenocarcinoma most common

- SCC is the most common type of malignancy, but leiomyosarcomas and rhabdomyosarcomas are also encountered (rarely).
- Tumors on the tongue may occur on any surface but are most commonly seen on the lateral and ventral surfaces.
- The regional lymphatics of the oral cavity are to the submandibular space and the upper cervical lymph nodes.
- Risk factors- tobacco and alcohol.

1133. Epulis arises from -

a) Enamel

b) Root of teeth

c) Gingiva

d) Pulp

Correct Answer - C
Answer is 'c' i.e. Gingiva
Epulis literally means *'upon the gum'.* Thus it is a swelling situated on the gum.
It can originate from the mucous membrane, the periosteum or the bone giving rise to different varieties of Epulis.

1134. Kasai operation

a) Biliary atresia

b) Choledochal cyst

c) Hepatocellular carcinoma

d) Primary biliary cirrhosis

Correct Answer - A
Answer- A. Biliary atresia
Kasai operation is also known as hepatoportoenterostomy.
Biliary atresia is currently MC indication for pediatric liver transplantation.

1135. In a patient of acute cholecystitis, referred pain to the shoulder is k/a

a) Murphy's sign

b) Gray Turner sign

c) Boa's sign

d) Cullen's sign

Correct Answer - C

Ans is 'c' i.e. Boas' sign

Boas' sign: In cases of acute cholecystitis pain radiates to the tip of the right shoulder and an area of skin below the scapula is found to be hypersensitive. This is k/a Boas' sign. Sensitivity is quite less.

Also Know:

Murphy's sign: Seen in acute cholecystitis. Murphy's sign is elicited by asking the patient to breathe out and then gently placing the hand below the costal margin on the right side at the mid-clavicular line (the approximate location of the gallbladder). The patient is then instructed to inspire (breathe in). Normally, during inspiration, the abdominal contents are pushed downward as the diaphragm moves down (and lungs expand). If the patient stops breathing in (as the gallbladder is tender and, in moving downward, comes in contact with the examiner's fingers) and winces with a 'catch' in breath, the test is considered positive. In order for the test to be considered positive, the same maneuver must not elicit pain when performed on the left side.

Grey Turner & Cullen's sign: positive in severe necrotizing pancreatitis. Grey Turners sign is bluish discolouration seen at the flanks. Bluish discolouration around the umbilicus is known as

Cullen's sign.

1136. False about hepatic adenoma

a) Benign lesion

b) OCP use

c) Older females

d) Cold on isotope scan

Correct Answer - C
Answer- C. Older females
Hepatic adenomas are benign solid neoplasms of liver.
MC seen in younger females (20-40 years of age)
Usually solitary
Risk factor - Prior/current use of estrogens (OCP)

1137. Bismuth classification in which class, hepatic duct confluence is involved

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - B
Answer- B. Type II
Bismuth - Corlette classification is used to classify cholangiocarcinoma
Type I - Common hepatic duct involvement.
Type II - CHD + bifurcation/confluence of hepatic ducts. Type III- a) Extension to right secondary intrahepatic duct. b) Extension to left secondary intrahepatic duct.
Type IV - Involving both right and left secondary intrahepatic ducts.

1138. Parathyroid glands are removed by surgery, for recurrence investigation of choice

a) Technetium scan

b) SPECT

c) MRI

d) Neck ultrasound

Correct Answer - A

Answer-A. Technetium scan

- Preoperative localisation tests for parathyroid glands are
1. Tc 99m labeled sestamibi scan (>80% sensitive)
2. Single positron emission computed tomography (SPECT).
3. CT and MRI scan.
4. Neck ultrasound.

1139. Which is not a contraindication for pancreaticoduo-denectomy

a) Metastasis

b) Portal vein involvement

c) Stage III CA head of pancrease

d) Invasion of superior mesentric vein

Correct Answer - B
Answer- B. Portal vein involvement
Tumor (T)
TX - Primary can't be asscessed.
To - No evidence of primary tumor.
T1 - Ca in situ.
T1 - Limited to pancreas and 2cm.
T2 - Limited to pancreas and > 2cm.
T3 - Extends beyond pancreas but no involvement of celiac axis or superior mesentric artery.
T4 - Involves celiac axis or Sup-mesenteric artery (unresectable primary).
Regional lymph nodes (N)
NX - Regional LI\l, canot be assessed.
N1 - No regional LN metastasis.
N2 - Regional LN metastasis.
Regional lymph nodes (N)
Mx- Distant metastasis cannot be assessed.
Mo- No distant metastasis.
M1 - Distant metastasis.

1140. Most common cause of chronic pancreatitis

a) Chronic alcoholism

b) Tropical pancreatitis

c) Pancreas divisium

d) Gall stone disease

Correct Answer - A
Answer- A. Chronic alcoholism
"Worldwide, alcohol consumption and abuse is associated with chronic pancreatitis in up to 70% of cases "

1141. Most common cause of acute parotitis -

a) Staphylococcus Aureus

b) Streptococcus Pneumonia

c) Klebsiella

d) Streptococcus Viridans

Correct Answer - A
Answer- A. Staphylococcus Aureus
MC organism is **Staphylococcus Aureus** >> streptococcus viridans >> pneumococcus.
Acute bacterial parotitis: is **most** often **caused** by a **bacterial** infection of Staphylococcus aureus but may be **caused** by any commensal bacteria.
Usually ascending infection Staphylococcus aureus
Ref- Manipal Manual of Surgery 5th edition

1142. Pre-operative prophylaxis for pheochromocytoma

a) Alpha blockade after beta blocker

b) Beta blockade after alpha blocker

c) Alpha blocker

d) Beta blocker

Correct Answer - B

Answer- B. Beta blockade after alpha blocker

Beta blockers such as propanalol at doses of 10 to 40 mg every 6 to 8 hours are often needed in patients who have persistant tachycardia and arrhythmias. n-blockers should only be added after adequate a-blockade and rehydration.

a-adrenergic agonists may be needed in immediate post operative period to prevent post operative hypotension and cardiovascular collapse.

1143. VIPoma is associated with which syndrome:

a) Zollinger Ellison

b) Verner Morrison

c) Carcinoid syndrome

d) Cushing's syndrome

Correct Answer - B
Ans is 'b' i.e. Verner Morrison
VIPomas are endocrine tumors that secrete excessive amounts of *vasoactive intestinal peptide* (VIP),
Excessive VIP causes a distinct syndrome characterized by large-volume diarrhea, hypokalemia, and dehydration. This syndrome also is called Verner-Morrison syndrome, pancreatic cholera, and WDHA syndrome for watery diarrhea, hypokalemia, and achlorhydria.
The principal symptoms are large-volume diarrhea (100%) severe enough to cause hypokalemia (80-100%), dehydration (83%), hypochlorhydria (54-76%), and flushing (20%).
In adults 80-90% of VIPomas are pancreatic in location, with the rest due to VIP-secreting pheochromocytomas,

1144. Child with polytrauma came to casualty, dose of packed cell

a) 10 ml/kg

b) 20 ml/kg

c) 30 ml/kg

d) 40 ml/kg

Correct Answer - A
Answer-A
Usual dosage of packed red cells in pediatric populations is 10-15 ml/kg, but can be increased upto 20 ml/kg in cases where higher increase in HCt is needed, as in trauma.
Colloid 10ml/kg
Crystalloid 20ml/kg
Requiring > 20 ml/Kg of PRBCs in the 1st hour of resuscitation
Pediatric MTG Pack (≤ 50 Kg)
• 4 Units of PRBCs
• 2 Units of thawed plasma
• 1 Unit of apheresis platelets

1145. Polytrauma patient came to EMS, dose of crystalloid given should be

a) 500 ml RL bolus then regulated by indicators

b) 2000 ml bolus

c) 1000 ml bolus then regulated by clinical indicators

d) 250 ml bolus

Correct Answer - C
Answer- C. 1000 ml bolus then regulated by clinical indicators
Fluid resuscitation begins with 1000 ml bolus of RL for adult and 20 ml/kg for a child. Response to therapy is monitored by clinical indicators as blood pressure, skin perfusion, urinary output and mental status.

1146. **Most common diaphragmatic hernia is:**

a) Bochdalek hernia

b) Morgagni hernia

c) Paraesophagel hernia

d) None of the above

Correct Answer - A

Diaphragmatic hernias are of various types. The most common is a posterolateral (Bochdalek) hernia, which occurs as a result of a defect in the posterior diaphragm in the region of the tenth or eleventh ribs.

1147. A polytrauma CT scan, CT brain shows a lesion with concave margin

a) EDH

b) SDH

c) Contusion

d) Diffuse axonal injury

Correct Answer - B
Answer- B. SDH
SDH - On head CT, the clot is bright or mixed density, cresent shaped (Lunate), may have a less distinct border and does not cross midline.
Contusion - The contused area appears bright on CT Scan.

1148. Most common cause of chylothorax is?

a) Trauma

b) Lymphoma

c) Left-sided heart failure

d) Infections

Correct Answer - B

Answer- B. Lymphoma

- Chylothorax is a pleural collection of a milky lymphatic fluid containing micro globules of lipid.
- It results from lymph formed in the digestive system called chyle accumulating in the pleural cavity due to either disruption or obstruction of the thoracic duct.
- The total volume of fluid may not be large, but chylothorax is always significant because it implies obstruction of the major lymph ducts, usually by intrathoracic cancer like primary or secondary mediastinal neoplasm, such as lymphoma.

1149. The commonest site of aspiration of a foreign body in the supine position is into the:

a) Right upper lobe apical

b) Right lower lobe apical

c) Left basal

d) Right medial

Correct Answer - B

- In supine position and with the patient on back superior segment of **RLL** is the most dependent segment.

1150. A person inhaled peanut two days back& now unable to cough it out where is the possible location

a) Right superior lobe

b) Rt middle lobe

c) Rt lower lobe

d) Lt lower lobe

Correct Answer - C

Answer- C. Rt lower lobe

The most common anatomic location for a foreign body is the right main stem bronchus or the right lower lobe.

1151. In Marfan's syndrome, Aortic aneurysm occurs most commonly in:

a) Ascending aorta

b) Descending aorta

c) Abdominal aorta

d) Arch of aorta

Correct Answer - A

The answer is A (Ascending Aorta)

Aortic aneurysms in Marfan's syndrome occur most frequently in the ascending aorta.

Cardiovascular lesions in Marfan's syndrome

Cardiovascular lesions are the most life-threatening features of Marfan's syndrome.

Mitral valve prolapse(MVP)

- Loss of connective tissue support in mitral valves leaflets makes them soft and blowy creating the so-called *'floppy valve'.*
- Mitral regurgitation frequently results.

Dilatation of Ascending Aortae

- The media undergoes cystic necrosis (cystic medionecrosis).
- Loss of medial support results in progressive dilatation of aortic valve ring and root of the aorta
- Severe aortic incompetence Aortic dissections

1152. Hernia most commonly strangulates in

a) Indirect

b) Direct

c) Spigelian

d) Incisional

Correct Answer - A
Answer- A. Indirect
"Most strangulated hernias are indirect inguinal hernias, however, femoral hernias have the highest rate of strangulation (15-20%) of all hernias".

1153. **All of the following statements regarding Sickle Cell Anemia is true, EXCEPT:**

a) Patients require frequent blood transfusions

b) Patients usually presents before the age of 6 months

c) There is a positive correlation between HBS and polymerization of HBS

d) Reccurent infections is the most common cause of death

Correct Answer - B

Sickle cell anemia is an autosomal recessive disorder, caused by an amino acid substitution of valine for glutamine in the sixth position on the beta-globin chain. Onset of the disease starts during the first year of life especially after 6 months of age, when hemoglobin F levels falls, as a signal is sent to switch from production of gamma globin to beta globin.

Hemoglobin S is unstable and polymerizes during hypoxemia and acidosis, leading to sickling of red blood cells. Patients develops jaundice, pigmented gallstones, spleenomegaly, and poorly healing ulcers over the lower tibia. Acute painful episodes can occur due to acute vaso-occlusion by clusters of sickled red cells during infection, dehydration, or hypoxia. Common sites of acute painful episodes include the bones and the chest.

Ref: Current Medical Diagnosis and Treatment 2012, Chapter 13 ; Medical Assisting: Administrative and Clinical Competencies By Lucille Keir, 6th Edition, Page 471

1154. What stimulates the gonads in male at 8 week to secret testosterone -

a) Inhibin from corpus luteum

b) GnRH from hypothalamus of baby

c) Placental HCG

d) All of above

Correct Answer - C
Ans. is 'c' i.e., Placental HCG
During embryogenesis, In male embryo, at 6-7 week of gestatin, secretion of first anti-mullerian hormone (also k/o mullerian inhibiting substance) causes regression of mullerian duct.
Then at 8-12 week, under influence of Placental HCG, testes started producing testosterone.

1155. XX baby presenting with penis & scrotum cause -

a) High level of testosterone in maternal blood

b) Klinfilter syndrome

c) Turner syndrome

d) None of above

Correct Answer - A

Answer- A. High level of testosterone in maternal blood

This is a case of female pseudohermaphroditism i.e. XX karyotype with virilized external genitalia.

Maternal androgen (testosterone) is the cause of this.

Female pseudohermaphroditism

- Genotype is XX. Internal gonad is ovary but external genitalia are virilized (male differentiation).
- Congenital adrenal hyperplasia (CAH) due to 21-hydroxylase deficiency is the commonest cause.
- Other causes are maternal virilizing tumor (arrhenoblastoma),maternal androgen administration, CAH due to 11-beta hydroxylase deficiency, fetal placental aromatase deficiency, and WNT-4 gene mutation.

1156. Male pseudohermaphrodism most common cause -

a) Congenital adrenal hyperplasia

b) Adrenocortical tumor

c) Chromosomal abnormalities

d) Cytogenetic abnormalities

Correct Answer - D
Answer- D. Cytogenetic abnormalities
Most common cause of female pseudohermaphroditism - CAH due to 21 hydroxylase deficiency.
Most common cause of male pseudohermaphroditism - Gonadal dysgenesis and defect in androgen action.

1157. Causes of mental retardation in congenital hypothyroidism is -

a) Decrease cerebral growth

b) Decrease myelination of CNS neuron

c) Decrease growth hormone by pitutary glands

d) Decreae production of neurotransmitters

Correct Answer - A

Answer- A. Decrease cerebral growth

is 'a' i.e., Decrease cerebral growth [Ref : Ghai 7h/e p. 481; Jornal of Americal Physiological Review]

Thyroid hormone has major effect on brain in utero & neonatal period, deficiency cause diminsh axonal growth, dendritic arborisation, delay proliferation & migration of granule cell so it decrease cerebral growth.

1158. Dosage of intravenous fluid for 2 month old child in diarrhoea with severe dehydration -

a) 100 ml/Kg in 6 hour

b) 50 ml/Kg in 6 hour

c) 75 ml/Kg in 6 hour

d) 80 ml/Kg in 6 hour

Correct Answer - A
Answer- A. 100 ml/Kg in 6 hour
So total fluid to be given 100 ml/Kg in 6 hour.

1159. Rehydration therapy in a 2 year old severely dehydrated child is -

a) 30 ml/kg in 1 hour, 70 ml in 5 hours

b) 30 ml/kg in 30 min, 70 ml/kg in 2'/2 hours

c) 20 ml/kg in 30 min, 80 ml/kg in 2'/2

d) 75 ml/kg in 4 hours

Correct Answer - B
Answer- B. 30 ml/kg in 30 min, 70 ml/kg in 2'/2 hours
12 Month - 5 year 30 ml/Kg in 30 min 70 ml/Kg in 2.30 hour

1160. Which is MC genetic cause of mental retardation -

a) Tuberous sclerosis

b) Cri-du-chat syndrome

c) Fragile-x-syndrome

d) Angel's syndrome

Correct Answer - C
Ans. is 'c' i.e., Fragile-X-syndrome
o Down's syndrome is the most common genetic cause of mental retardation, and fragile-X is second to Down's.
Also know
o Most common inherited cause of mental retardation is fragile-X-syndrome (because down's syndrome is congenital cause but not inherited).

1161. Barr body is absent in female having ?

a) 46 XX genome

b) 45 X0 genome

c) 47 XXX

d) All of above

Correct Answer - B
Ans. is 'b' i.e., 45 X0 genome
Barr body (Sex - chromatin)
o It is a densely staining inactivated condensed 'X' chromosome that is present in each somatic cells of female.
o It is found in the *nucleus.*
o It is used as a test of genetic *femaleness* it is possible to determine the genetic sex of an individual according as to whether there is a chromatin mass present on the inner surface of the nuclear membrane of cells with resting or intermitent nuclei.
Remember following fact and the question will seem very easy.

- *Chromatid body (Barr body or sex chromatin) is derived from one of the two X-chromosomes which becomes inactivated.*
- *The numer of Barr bodies is thus one less than the number of X-chromosomes.*

Note -
o Barr body is found in female But -
o Kleinefelter syndrome is male with Barr body.
o Turner syndrome is female without Barr body.

1162. Down syndrome - all are seen except -

a) t (14; 21)

b) t (11: 14)

c) Trisomy 21

d) t (15: 21)

Correct Answer - B
Ans. is 'b' i.e., t (11: 14)
In 95% of cases of Down syndrome-trisomy of 21:-

- Extra chromosome is of maternal in origin.
- I% have mosaic with some all have 46 chromosome.
- 4% have robertsonian translocation.
- t (13 : 21)
- t (14 : 21)
- t (15 : 21)
- Very rarely long arm of chromosome 21 is triplicate (Partial trisomy).

1163. Simian crease is not seen in -

a) Down

b) Trisomy 13

c) Atopic dermatitis

d) Noonan syndrome

Correct Answer - C
Answer- C. Atopic dermatitis
Simian crease
Single transverse palmer crease
Resembles non-human-simian so known as simian crease.
It is seen in :
1. Down syndrome
2. Fetal alcohol syndrome
3. Cri-du chat syndrome (Chr. 5)
4. Klinefelter (XXY)
5. Noonan (Chr. 12)
6. Patau (Chr. 13)
7. Edward (Chr. 18)

1164. Rubella causes all except

a) Microcephaly

b) VSD

c) Conduction defect

d) All

Correct Answer - B
Ans. is 'b' i.e., VSD

- *Organ of corti : Sensorineural hearing loss (Most common clinical finding of congenital rubella).*
- *Heart : PDA (Most common CHD in congenital rubella), PS, VSD, ASD* TOF, pulmonary artery hypoplasia.
- *Eye : Cataract,* retinopathy, microphthalmia, myopia, glaucoma.
- CNS : *Mental retardation,* spastic diplegia, *microcephaly,* seizures, behavioral disorders.
- *Other :* IDDM, thyroid disorders, inguinal hernia, cryptorchidism, interstitial pneumonia.

1165. TB in children, most common is -

a) Abscess

b) Consolidation

c) Hilar adenopathy

d) CNS tuberculosis

Correct Answer - C
Answer- C. Hilar adenopathy
"Most common form of primary TB in children is pulmonary TB. This could be in the form of hilar lymphadenopathy with or without lung parenchymal involvement".

1166. LEOPARD syndrome includes all except -

a) Growth retardation

b) ECG changes

c) Hypertelorism

d) Hypergonadism

Correct Answer - D
Answer- D. Hypergonadism
LEOPARD syndrome
Lentigines
Electrocardiographic conduction abnormalities
Ocular hypertelorism
Pulmonary stenosis
Abnormal genitalia
Retarded growth
Deafness

1167. GBS in a child treatment -

a) IV Ig

b) Ventilation

c) Plasmapharesis

d) All of above

Correct Answer - D

Answer- D. All of above

Treatment of Guillain-barre syndrome -

- Self limited in majority of cases.
- Intravenous immunoglobin shows good response.
- Plasma pharesis - Removal of autoantibodies.
- Assisted ventilation - If patient had respiratory muscle paralysis.
- Physiotherapy.

1168. Dose of i.v. adrenaline in term infant is during neonatal resuscitation -

a) 0.1 - 0.3 ml/kg in 1:1000

b) 0.3 - 0.5 ml/kg in 1:1000

c) 0.1-0.3 ml/kg in 1:10,000

d) 0.3 - 0.5 ml/kg in 1:10,000

Correct Answer - C
Ans. is c i.e., 0.1-0.3 mUkg in 1:10,000
Dose or adrenlaine ?
0.1 ml/kg to 0.3 inlikg diluted (1: I0,000)
Routs : (1) Intravenous (umbilical vein) or
(2) Endotracheal
Indication ?
HR < 60/min after 30 sec. of positive pressure ventilation & chest compression

1169. Pica refers to -

a) Ice sucking

b) Thumb sucking

c) Foreign object being put in the mouth

d) None of above

Correct Answer - C
Answer- C. Foreign object being put in the mouth
Pica involves repeated or chronic ingestion of non-nutritive substances, which include plaster, charcoal, clay, wool, ashes, paint & earth.

1170. Maximum concentration of dextrose that can be given through peripheral vascular line in neonate -

a) *5*

b) 10

c) 12.5

d) 25

Correct Answer - C
Ans. is 'c' i.e., 12.5
o Hypoglycemia in neonates is blood sugar < 40 mg/dl
o Common in preteen, IUGR, infant of diabetic mothers
o Treated by breast feed, formula feed & I.V. dextrose solution

- In symptomatic hypoglycemia 2 ml/g 10% Dx IV bolus given then increase dextrose contents of intravenous fluid.
- Don't give > 12.5% dextrose infusion through peripheral line because of risk of thrombophlebitis. (Prefer central line)

1171. CPR with 2 candidate is done at rate of (in infant) -

a) 15 : 2

b) 30 : 2

c) 1 : 3

d) 1 : 5

Correct Answer - A
Answer- A. 15 : 2
In infant children with two resuscitator = 15 : 2
In adult with two resuscitator - 30 : 2
In single resuscitator chest compresion ventilation ratio in all age group i.e. Infant, children & adult = 30 :

1172. Neonatal lupus -

a) Heart block

b) Thrombocytopenia

c) Cutaneous lesion

d) All of above

Correct Answer - D
Answer- D. All of above
Neonatal lupus
Age of onset newborn to 6 month
Skin lesion include :

- Annular erythematous scaly plaque.
- Seen on sun exposed = head, neck
- May be associated with heart block/thrombocytopenia

Diagnosed by:

- ANA
- Anti RO antibodies

1173. Most common cerebellar tumor in children?

a) Astrocytoma

b) Medulloblastoma

c) Ependymoma

d) DNET

Correct Answer - A
Ans. is 'a' i.e., Astrocytoma
o The most common cerebellar tumor in adults is metastasis, whereas in children the most common tumor is an astrocytoma.

1174. All of the following are features of juvenile CML except -

a) Thrombocytopenia

b) Fetal Hb is increased

c) Philadelphia chromosome is positive

d) Lymphadenopathy

Correct Answer - C

Ans. is 'c' i.e., Philadelphia chromosome is positive

Juvenile CML is mostly seen in children below 2 years of age. Philadelphia chromosome is negative and leukocyte count is less than 100'000/mm3.

Features	Adult CML	Juvenile CML
• Age	10-12 years	< 2 years
• Bleeding manifestation	Absent	Frequent
• *Thrombocytopenia*	Uncommon	*Frequent*
• Rash	Absent	Frequent
• *Lymphadenopathy*	Rare	*Frequent*
• Splenomegaly	Marked	Variable
• WBC count at diagnosis	> 100'000	< 100'000
• WBC type		

Granulocyte	Monocyte
• Normoblastic	
Unusual	Common
• *HbF*	
Normal	*Increased*
• Immunoglobulins	
Normal	Increased
• Muramidase levels	
Normal	Increased
• Response to Busulphan	
Good	Poor
• Survival	2.5-3 years
9 months	

1175. Most common benign tumours during infancy is-

a) Lymphangioma

b) Hemangioma

c) Cystic hygroma

d) Lipoma

Correct Answer - B
Ans. is 'b' i.e., Hemangioma
o Hemangiomas, the most common benign tumors of infancy, occur in 10% of term infants.

1176. Opsoclonus - Myoclonus is a phenomenon seen in ?

a) Wilms tumor

b) Neuroblastoma

c) Meningioma

d) Cortical tuberculoma

Correct Answer - B
Ans. is 'b' i.e., Neuroblastoma
Opsoclonus is a disorder of eye movement characterized by involuntary, chaotic saccades that occur in all directions of gaze. It is frequently associated with myoclonus and ataxia.
Opsoclonus-myoclonus may be cancer-related or idiopathic.
When the cause is paraneoplastic, the tumors involved are usually cancer of the lung and breast in adults and neuroblastoma in children.

1177. Enzyme used as treatment for sickle cell anemia

a) Chymotrypsin

b) Glucose 6-phosphatase

c) Trypsin

d) None of above

Correct Answer - A
Answer- A. Chymotrypsin
Chymotrypsis used in Sickle cell disease.

1178. A child is able to build blocks of 5 Cubes developmental age is -

a) 12 months

b) 15 months

c) 18 months

d) 24 months

Correct Answer - C
Ans. is 'c' i.e., 18 month

Bang 2 cube - 8 month
Tower of 2 cubes - 15 month
4 cubes - 18 month
6 cubes - 22 month

1179. A child is able to say short sentences of 6 words -

a) 2 years

b) 3 years

c) 4 years

d) 5 years

Correct Answer - C
Ans. is 'c' i.e., 4 years
o 2 word sentences = 19 month
o 6 word sentences = 48 month
o 10 word sentences = 60 month

1180. Child starts monosyllables speech in which age

a) 4 months

b) 6 months

c) 8 months

d) 10 months

Correct Answer - B
Answer- B. 6 months
3 months- Starts cooing
6 months- Produces monosyllable sounds like da, ma
9 months- Produces bisyllable sound like baba, mania

1181. Upper segment to lower segment ratio in 3 yr age child is -

a) 12

b) 1.3

c) 1.4

d) 1.6

Correct Answer - B
Ans. is 'b' i.e., 1.3
o The lower segment extends from the symphysis pubis to the heels.
o The lower segment grows rapidly after birth as compared to upper segment giving rise to the gradual reduction in the upper segment/lower segment ratio with the progression of age.

Age	***Upper segment : Lower segment ratio***
At birth	1.7 : 1.0
3 years	1.3 -1.0
At 7 years	1.0 : 1.0
Thereafter	1.0:1.1

1182. First permanent teeth to erupt is:
September 2008

a) First premolar

b) Second premolar

c) First molar

d) Second molar

Correct Answer - C
Ans. C: First molar
At the age of about 6-7 year, first permanent molar teeth erupts behind the second temporary molar.
At the age of 9, there are 12 permanent teeths. At the age of 11, there are 20 permanent teeths At the age of 14, there are 28 permanent teeths

1183. Delayed dentition is seen in all/except *?*

a) Down syndrome

b) Congenital hypothyroidism

c) Rickets

d) All of above

Correct Answer - D
Ans. is 'd' i.e., All of above
Causes of delay in tooth eruption :
1) Impacted teeth 4) Cong hypothyroidsm
2) Down syndrome 5) Gaucher
Cleidocranial dysplasia 6) Osteo petrosis

1184. 5 year old child bed wetting Rx of choice ?

a) No treatment

b) Imipramin

c) Desmopressin

d) Motivational therapy

Correct Answer - A
Ans. is 'a' i.e., No treatment
o *No treatment is given to children below 6 years of age because of high spontaneous cure rate. o* After 6 years treatment include.
t) Behavioral therapy : This is the treatment of choice.
it) Pharmacological treatment : It is used when non-pharmacological (behavioral) therapy fails. *Desmopressin is the drug of choice.* Other drugs used are *impramine and oxybutinin.*

1185. Nocturnal enuresis best t/t is

a) Positive reinforcement

b) Punishment

c) Bed alarm

d) Desmopressin

Correct Answer - A
Answer- A. Positive reinforcement
Consistent dry bed training with positive reinforcement has a success rate of 85% and bed and pad alarm systems have a success rate of approximately 75% with relapse rate that are lower than those with pharmacotherapy.

1186. What is thelarche -

a) Pubertal breast enlargement in boys

b) Breast enlargement in pregnancy

c) Hormone related breast enlargement in girls

d) Post hormonal therapy breast enlargement in postmenopausal females

Correct Answer - C
Ans. is 'c' i.e., Hormone related breast enlargement in girls
Thelarche
o Definition :- Begining of secondary (Post natal) breast development at onset of puberty in girls.
Tanner stage 2 breast development
Usually after 8 years of age
Because of rising level of estradiol
Breast development during puberty in male termed as gynaecomastia not thelarche.

1187. In Precocious puberty age limit of girls is-

a) 8 year

b) 10 year

c) 9 year

d) 11 year

Correct Answer - A
Answer- A.8 year
Precocious puberty in a girl is the appearance of any of the secondary sexual characteristics before the age of 8 years or the occurrence of menarche before the age of 10 years.
Precocious puberty in boys is the onset of secondary sexual characteristics before the age of nine years.

1188. Diarrhoea in *a* child of 12 month, dose of Zinc is ?

a) 1 mg / 10 - 14 day

b) 10 mg / 10 - 14 day

c) 15 mg/ 10- 14 day

d) 20 mg / 10 - 14 day

Correct Answer - D
Ans. is 'd' i.e., 20 mg/10-14 days
According to WHO guidlines
Dose of Zinc
2 month - 6 month = 10 mg / day x 14 days > 6 months = 20 mg/day x 14 days

1189. Selenium deficiency is seen in -

a) Keshan disease

b) Wilson disease

c) Acrodermatitis enteropathica

d) None of above

Correct Answer - A
Ans. is 'a' i.e., Keshan disease
o Keshan disease ---> Disorder of Se metabolism
o Wilson's disease ---> Disorder of Cu metabolism
o Acrodermatitis enteropathica --> Disorder of Zn metabolism

1190. Malnourished child minimum weight gain

a) 5 gm/kg/day

b) 10 gm/kg/day

c) 15 gm/kg/day

d) 20 gm/kg/day

Correct Answer - A
Answer- A. 5 gm/kg/day
In malnourish child if there

- > 10 gm/kg/day = good weight gain
- 5-10 gm/kg/day = moderate weight gain
- < 5 gm/kg/day = poor weight gain

1191. Preterm baby have

a) Continue extramedullary hematopoesis

b) Greater risk of hypothermia

c) Greater risk of hypoglycemia

d) All of above

Correct Answer - D

Answer- D. All of above

Preterm baby (< 37 week of gestation). Have high risk for

- RDS (HMD)
- Broncho pulmonary dysplasia (BPD)
- PDA
- Anemia (early & late)
- IVH
- Sepsis
- NEC
- Jaundice
- Hypoglycemia, hypokalemia, hypothermia
- IVH
- ROP (Retinopathy of prematurity).

1192. Low glucose level in premature

a) Increased brain to body ratio

b) Decreased glycogen stores

c) Decreased action of pyruvate carboxylase

d) All of above

Correct Answer - D
Answer- D. All of above
Hypoglycemia is common in pretem & IUGR babies b/c all three reason
1. Increased brain to body ratio.
2. Decrease action of pyruvate carboxylase.
3. Decrease glycogen store.

1193. Temperature of NICU is

a) 20-22° C

b) 22-26° C

c) 26-30° C

d) 30-35°C

Correct Answer - B
Answer- B. 22-26° C
Standards for NICU thermal invornment

- Specify 72-76° F (22-26° C) as acceptable range for air temperature.

1194. Anemia of prematurity - True is

a) Marginal reticulocytosis

b) <10 gm criteria (Hb level)

c) 10 ml/kg packed cell

d) Microcytic hypo chromic type

Correct Answer - B

Answer- B. <10 gm criteria (Hb level)

Normocytic, normochromic, hyporegenerative anemia with EPO level.

AOP usually resolve spontaneously within 3-6 months.

Aetiology

1. RBC production (Reti. count)
2. RBC life span
3. Blood loss

- Low hemoglobin (below 10 gm%)
- Reticulocyte count is low.

Treatment :

- Require blood transfusion if needed.
- Observe if neonate is asymptomatic.

1195. A baby is born at 27 weeks of gestation required mechanical ventilation for next 4 weeks & 0_2 for next 1 week. He maintained at room temperature subsequently. As per new Bronchopulmonary dysplasia definition, he has which of the following ?

a) Mild BPD

b) Moderate BPD

c) Severe BPD

d) No BPD

Correct Answer - A
Mild
Supplement O2 (for 28 days) and
< 32 weeks GA Breathing room air at 36 weeks at birth corrected GA or at discharge (whichever comes first).
. 32 weeks GA Breathing room air by 56 days at birth postnatal age or at discharge (whichever comes first).
• The baby in question falls in category < 32 weeks gestation age at birth.
• Simply looking at question, answer seems to be sever BPD as mechanical ventilation (positive pressure ventilation) has included only in diagnostic criteria of sever BPD.
• But, This baby was born at 27 weeks of gestation and required mechanical ventilation for 4 more weeks, i.e. upto 31 weeks corrected gestational age. After that he maintained at room air.

Thus, at 36 weeks corrected gestaional age, baby is breathing at room air —> diagnostic criteria of mild BPD.

1196. Hyperglycemia in Neonate if blood sugar is above ?

a) *150* mg/dl

b) 125 mg/dl

c) 180 mg/dl

d) 100 mg/dl

Correct Answer - B
Ans. is 'b' i.e., 125 mg/dl
o No established definition of neonatal hyperglycemia and upper safe limit of blood glucose has been determined
o Various researches has suggested
Whole blood glucose > 125 mg/dl
Plasma glucose > 150 mg/dl

1197. Blood transfusion to neonate rate of

a) 1-5 ml/min-5 ml/min.

b) 5-10 ml/min

c) 10-15 ml/min

d) 15-20 ml/min

Correct Answer - B

Answer- B. 5-10 ml/min

A) Exchange transfusion

- For term infant = 80-160 ml/kg
- For pre term = 100-200 ml/kg

B) Top-up transfusion

- Desired Hb (glds) - actual hb x kg x 3 (usually 10-20 ml/kg).
- Rate of transfusion 5-10 ml/min.

1198. Macrosomia is/are associated with:

a) Gestational diabetes mellitus

b) Maternal obesity

c) Hypothyroidism

d) A & B

Correct Answer - D
Ans. is a and b i.e. Gestational diabetes and Maternal obesity
Macrosomia is the term used to describe a large fetus.
The recommended definition is fetal (neonatal) weight exceeding two standard deviations or above 90th centile for the appropriate normal population.
According to ACOG : birth weight of > 4500gm is called as macrosomia.
In Indian context Birth weight of > 4000 gm is called as macrosomia.

1199. In children, CHF (congestion heart failure) is diagnosed by

a) Raised JVP

b) Pedal edema

c) Tender hepatomegaly

d) Basal crepts

Correct Answer - C

Answer- C. Tender hepatomegaly

Heart failure in infants & children results some degree of hepatemegaly which is usually tender & sometimes splenomegaly.

Peripheral edema is age dependent :

- In infants, edema usually eye & over flank.
- Older childern & adolescent shows both periorbital edema & pedal edema and occurs late.

1200. Large PDA leads to ?

a) Endocardial valvulitis

b) Eisenmenger syndrome

c) CHF

d) All of above

Correct Answer - D
Ans. is 'd' i.e., All of above
Patent ductus arteriosus (PDA)

- Small PDA may not cause any complication but large defect if untread may leads to :
- Pulmonary hypertension Left to Right shunt leads to too much circulation of blood in lung which leads to pulmonary hypertension.
- Eisenmenger's syndrome - Large standing pulmonary hypertension leads to permanent lung damage and causes Right to Left shunt.
- Endocarditis.
- Arrhythmia Enlargement of heart due to PDA increase risk of arrhythmias

1201. ASD is associated with all except ?

a) Infective endocarditis

b) Stroke

c) Arrhythemia

d) Pulmonary hypertension

Correct Answer - A
Ans. is 'a' i.e., Infective endocarditis
o ASD is usually subtle and not having significant problem except mild growth disturbance.
o Ostium secundun ASD is M.C. type of ASD.
o Ostium secundum ASD usually associated with mitral valve prolopse or stenosis (Lutembacher's Syndrome). o Complication usually develop in 4^{th}clecade and include :
I) Pulmonary hypertension
2) Rt. sided heart failure
3) Stroke
4)Eisenmenger's syndrome
Infective endocarditis is very rare in ASD and not require any antibiotic prophylaxis.

1202. Acute Infective Endocarditis with abscess formation is most commonly associated with

a) Listeria

b) Staphylococcus

c) Streptococcus

d) Enterococcus

Correct Answer - B
Answer is B (Staphylococcus)
Acute Infective Endocarditis with abscess formation is most commonly associated with staphylococcus.
`The most common organism causing acute infective endocarditis overall is staphylococcus aureus. Staphylococcus aureus endocarditis is particularly virulent and associated with annular and myocardial abscess formation and a higher mortality'

1203. **Which of the following statements regarding fetal circulation is correct?**

a) The liver and heart of the fetus receive blood with very high oxygen saturation

b) PO2 of fetal blood leaving the placenta is slightly greater than maternal mixed venous PO2

c) The presence of fetal hemoglobin shifts the oxyhemoglobin dissociation to the right

d) The foramen ovale closes during the third trimester unless the fetus has an atrial septal defect

Correct Answer - A

Since the liver is supplied by umbilical venous blood from the placenta, and the heart and head receive blood before it has mixed with significant amounts of desaturated blood, these important organs receive blood that is relatively high in saturated oxyhemoglobin.

The high rate of blood flow at the placenta and the significant resistance of the placenta to diffusion of oxygen result in blood in the umbilical vein that has a lower PO2 (30 mm Hg) than the maternal mixed venous blood.

However, the left shift in fetal oxyhemoglobin concentration and the Bohr effect both act to increase the transport of oxygen to fetal tissues.

A number of significant differences in circulating patterns are present in the fetus.

The foramen ovale remains open until after birth and a significant portion of inferior vena cava flow is shunted through it to the left.
1/3 of blood enters directly from right atrium to left atrium (bypassing right ventricle) through foramen oval

The major portion of right ventricular output is shunted through the ductus arteriosus to the aorta, not the lungs.

The net effect of these shunts in the presence of high fetal pulmonary vascular resistance is very low fetal pulmonary blood flow.

At birth, these patterns normally are quickly changed to ex-utero patterns with high pulmonary perfusion.

Ref: Barrett K.E., Barman S.M., Boitano S., Brooks H.L. (2012). Chapter 33. Circulation through Special Regions. In K.E. Barrett, S.M. Barman, S. Boitano, H.L. Brooks (Eds), *Ganong's Review of Medical Physiology*, 24e.

1204. Double arch aorta is seen in

a) CATCH 22

b) Digeorge syndrome

c) Sphrintzen velo cardio facial syndrome

d) None of above

Correct Answer - A
Answer- A. CATCH 22
CATCH 22 stands for

- Cardiac defect - double arch aorta. VSD, pulmonary atresia.
- Cleft palate
- Abnormal facies
- Hypocalcemia
- Thymic hypoplasia

1205. Decorticate child - Flase statement is *?*

a) Acute Brain injurys

b) Susthalamic, CT & frontal lobe lesion

c) More dangerous than decerebrate lesion

d) Flexion of arm & extension of lower limb

Correct Answer - C
Ans. is 'c' i.e., More dangerous than decerebrate lesion
Decortical Posture
o Also known as flexor posturing or Mummy baby
o Arms flexed/bent over chest, hand fisted, leg extended & rotated inward
o Damage to area in cerebral hemisphere, internal capsule, thalamus & upper part of brain.
o Decorticate posture is ominous sign of severe brain damage.
Decerebrate posture
o Also known as extensor posturing
o Extension of upper limb & lower limb (ELBOW EXTENDED)
o Indicates brain stem damage (Below level of red nucleus)
o Decerebrate posture is more ominous than decortical posture

1206. Treatment of simple febrile convulsion is based on

a) Control of fever

b) Rectal diazepam

c) CSF finding

d) Blood reports

Correct Answer - A

Answer- A. Control of fever

Prompt reduction of temperature by hydrotherapy (sponging) and antipyretics (paracetamole, ibuprofen) is the most important measure. If seizures lasts for more than 5 minutes, diazepam (rectal or IV) is the anticonvulsant of choice. Phenobarbitone is an alternative

1207. What is correct about febrile seizures

a) Normal EEG

b) Focal deficits

c) Repeated seizure

d) Abnormal EEG

Correct Answer - A
Answer- A. Normal EEG
Spontaneous remmission occurs with no postictal neurological deficit and EEG changes few days after the seizure is normal.
Recurrent febrile seizures occur in 30-50% of cases.
More than 90% of febrile seizures are generalized.
Acute respiratory illness are most commonly associated with febrile seizures.

1208. Chronic constipation in children *is* seen in all A/E?

a) Hirschspring disease

b) Jejunal polyp

c) Hypothyroidism

d) Stricture

Correct Answer - B
Ans. is **'b' i.e.,** Jejunal polyp

- *Organic causes of constipation are :*

i) *Intestinal:* Hirschprung disease, Anal/rectal stenosis, Anal fissure, anteriorly displaced anal opening, strictures.
ii) *Drugs:* Narcotics, vincristine, Psychotropics.
iii) *Metabolic/endocrine: Cystic fibrosis, hypothyroidism,* Panhypopituitrism
iv) *Neuromuscular:* Cerebral palsy, Psychomotor retardation, spinal cord lesions, Myotonic dystophy, Neuropathy or myopathy of GIT
v) *Other causes: Low fibre diet,* Milk protein allergy.

1209. 3 month infants with abdominal palpable mass & non bilious vomiting -

a) Hypertrophic biliary stenosis

b) Hypertrophic pyloric stenosis

c) Tracheoesophageal fistula

d) Duodenal atresia

Correct Answer - B
Ans. is 'b' i.e., Hypertrophic pyloric stenosis
Hypertophic pyloric stenosis

- Most common cause of nonbilious vomiting is Hypertrophic pyloric stenosis.
- Male > female.
- Vomiting starts with 3 week of age.
- Palpable mass is seen in epigastric region.
- Visible peristalsis is seen soon after feeding.
- Confirmed by USG abdomen.
- Contrast study shows :
  . Shoulder sign
  . Double tract sign.
- Treatment surgery = Ramstedt procedure.

1210. Causes of conjugated hyperbilirubinemia is ?

a) Rotor syndrome

b) Breast milk jaundice

c) Crigler najjar

d) Gilbert syndrome

Correct Answer - A

Ans. is 'a' i.e., Rotor syndrome

- Conjugated hyperbilirubinemia is seen when ?

i) Impaired secretion of conjugated bilirubin into bile -> *Dubin Johnson syndrome, Rotor syndrome.*

ii) Impaired bile flow —> *Obstructive jaundice,* primary *biliary cirrhosis, Neonatal cholestasis, e.g. Extrahepatic biliary atresia/neonate idiopathic hepatitis, Choledocal cyst, Sclerosing cholangitis, Caroli disease, Metabolic* (Tyrosinemia, Wolman disease, Nieman pick disease, Galactosemia, Fructosemia).

1211. Cause of neonatal hyperbilirubinemia ?

a) Inefficient erythropoiesis

b) RBC hemolysis

c) Immature liver enzyme

d) All of above

Correct Answer - D
Answer- D. All of above
Impaired bile flow → Obstructive jaundice, primary biliary cirrhosis, Neonatal cholestasis, e.g. Extrahepatic biliary atresia/neonate idiopathic hepatitis, Choledocal cyst, Sclerosing cholangitis, Caroli disease, Metabolic (Tyrosinemia, Wolman disease, Nieman pick disease, Galactosemia, Fructosemia).

1212. In Diapragmatic Hernia. Most common anomaly is seen in

a) Cardiovascular anomalies

b) Urinary tract

c) Craniofacial anomaly

d) Skull anomaly

Correct Answer - A

Answer- A. Cardiovascular anomalies

Diaphragmatic Hernia is defined as a communication between abdominal & thoracic cavities with or without abdominal contents in thorax.

Females are affected more than males.

More common on left side and is posterolateral.

Associated anomalies may be seen 30% of cases CNS lesions, esophageal atresia, omphalocele and CVS lesions. Most cases are sporadic.

Cardiac anomalis is MC anomalis.

1213. Hirschsprung disease is confirmed by *?*

a) Rectal biopsy

b) Per/Rectal examination

c) Rectal manometry

d) X-ray abdomen

Correct Answer - A
Ans. is 'a' i.e., Rectal biopsy
o Rectal suction biopsy is procedure of choice.

1214. Most common presentation of wilm's tumor ?

a) Hematuria

b) Asymptomatic abdominal mass

c) Abdominal pain

d) Headache

Correct Answer - B
Ans. is `b' i.e., Asymptomatic abdominal mass
Wilm's tumor (Nephroblastoma)

- Most common malignant tumor of kidney.
- 80% of tumor present below 5 year of age.

Presention :?

- Asymptomatic abdominal mass (M.C.).
- Haematuria (10-25%).
- Hypertension (25%).
- Abdominal pain (30%).
- Fever (20%).

1215. Posterior urethral valve - true A/E ?

a) Palpable bladder

b) Hydronephrosis

c) Painful stress incontinence

d) Recurrent UTI

Correct Answer - C
Ans. is `c' i.e., Painful stress incontinence
Posterior urethral valve

- Most common cause of severe obstructive uropathy in children.
- 30% of children experienced end stage renal disease/CRF
- Dilated prostatic urethra.
- Hypertrophy of bladder muscle
- Vesicouretic reflux seen in 50% of cases.
- *Back pressure change:*
- Hydronephrosis
- Distended bladder
- Thin urinary stream
- Recurent UTI because of urinary stasis

1216. Not true about chronic pyelonephritis in children -

a) Associated with Ureteric reflux

b) Associated with Intrarenal reflux

c) Associated with renal scarring

d) Males are more affected than female

Correct Answer - D
Ans. is 'd' i.e., Males are more affected than female
o 3 basic forms of UTI - (1) Pyelonephritis (2) Cystitis (3) Asymptomatic bacteremia
Chronic Pyelonephritis :-
Characterised by renal inflammation & fibrosts induced by recurrent or persistent renal infection, vesicoureteric reflux or other causes of UTI.
Progressive renal scarring which leads to end stage renal diseaes.
In reflex nephropathy, Intrarenal reflex of infected urine induces renal injury which heals by renal scarring.
Being - straight, short & wide urethra, recurrent UTI is more common in female, so CPN is also twice as common is female than male.

1217. Mousy urine in a child due to defect in phenylalamine to

a) Tyrosine

b) Homogentisic acid

c) Phenyl acetate

d) Phenylpyruvate

Correct Answer - A
Answer- A. Tyrosine
Phenylketonuria:

- Autosomal recessive
- Deficiency of phenylalanine hydroxylase.
- Defect in conversion of phenylalanine to tyrosine.
- This leads to increase level of phenylalanine.
- This increase phenlylalanine converted into phenylpyruvate and phenyl acetate.
- This phenyl acetate gives mousy or musty odour in urine/body.

1218. Highest cure rate is of -

a) Wilm's Tumor

b) Retinoblastoma

c) Rhabdomyosarcoma

d) All

Correct Answer - B
Ans. is 'b' i.e., Retinoblastoma
Tumor
5 years survival rate
Retinoblastoma
97%
Wilms
tumor
88%
Rhabdomyosarcoma
61%

1219. Most common site of extramedullary relapse of ALL in 6 year old is

a) Testes

b) Liver

c) Lung

d) None

Correct Answer - A
Answer- A. Testes
The common sites of relapse of ALL after complete remission are : Bone marrow (mc), CNS (2 mc) and testis.

1220. Proximal humerus fracture which has maximum chances of avascular necrosis

a) One part

b) Two part

c) Three part

d) Four part

Correct Answer - D

Answer- D. Four part

Neer's classified proximal humerus fracture into 4 types, based on these four segments :

1. One part fracture :-Fracture with minimal displacement.
2. Two part fracture :-One segment is displaced in relation to other.

Important two part fractures are :

(i) surgical neck fracture (most common) (ii) GT fracture, (iii) LT fracture, (iv) anatomical neck fracture .

3. Three part fracture :-Two segments are displaced in relation to other two.
4. Four part fracture :-All four major fragments are displaced.

Chances of AVN of humeral head are higher in four part fracture.

1221. Most common type of shoulder dislocation is:
March 2011

a) Posterior

b) Anterior

c) Inferior

d) Superior

Correct Answer - B
Ans. B: Anterior
Shoulder joint is the commonest joint in the body to dislocate
Anterior shoulder dislocation is much more common than posterior dislocation
Shoulder dislocation:

- MC joint to dislocate in body: Shoulder
- MC type of shoulder dislocation: Subcoracoid/ inferior
- Rarest type of shoulder dislocation: Posterior
- Posterior type of shoulder dislocation is associated with: Epileptic fits
- Bankart's lesion is related with avulsion of glenoidal labrum
- Hill Sach's lesion is found on humeral head
- Test for dislocation of shoulder joint:
  - Duga's test,
  - Hamilton ruler test,
  - Callaways test
- Kocher's manouevre is done to reduce a dislocated shoulder

1222. Most common muscle damaged in rotator cuff

a) Supraspinatus

b) Infraspinatus

c) Subscapularis

d) Teres minor

Correct Answer - A
Answer- A. Supraspinatus
During injury to rotator cuff, tendons are affected, not the muscle. Supraspinatus tendon is affected most frequently.

1223. True about supracondylar fracture of humerus

a) Common in adults

b) Extension type most common

c) Flexion type is most common

d) None

Correct Answer - B
Answer- B. Extension type most common
Supracondylar humeral fractures are the most common elbow fractures in children. Most common age group affected is 5-8 years. Boys are affected more than girls. Left side is more common than right.
Extension type is most common

1224. The malunion of supracondylar fracture of the humerus most commonly leads to:

a) Flexion deformity

b) Cubitus varus

c) Cubitus valgus

d) Extension deformity

Correct Answer - B

B i.e. Cabitus Varus

- *Malunion :* - It is the *commonest complication* of supracondylar fracture and results in *cubitus varus (Gun stock deformity).* Cubitus valgus is rare and may occur occasionally in posterolateral displacement.

1225. **The MOST common type of dislocation of elbow joint is:**

a) Posterior

b) Posterolateral

c) Posteromedial

d) Lateral

Correct Answer - A

In adults, the elbow is the second most frequently dislocated major joint, after the shoulder. It is the most commonly dislocated joint in children. More than 90% of all elbow dislocations are posterior dislocations.

This injury entails disengagement of the coronoid process of the ulna from the trochlea of the humerus with movement posteriorly.
The mechanism of injury is typically a fall onto an outstretched hand with the elbow in extension upon impact.

1226. What is seen on x-ray with posterior elbow dislocation

a) Coronoid process posterior to humerus

b) Coronoid process anterior to humerus

c) Coronoid process below humerus

d) None

Correct Answer - A
Answer- A. Coronoid process posterior to humerus
AP view : Greater superimposition of distal humerus with proximal ulna and olecranon (normally, only terminal part of humerus is superimposed).

1227.

In posterior dislocation of elbow, most prominent part

a) Coronoid

b) Radial head

c) Olecranon

d) None

Correct Answer - C
Answer- C. Olecranon
There is exaggrated prominence of the Olecranon

1228. Most common complication of lateral condyle humerus fracture

a) Malunion

b) Nonunion

c) VIC

d) Median nerve injury

Correct Answer - B
Answer- B. Nonunion
Lateral spur (Lateral condylar spur or lateral condylar overgrowth) is one of the most common complication. Delayed union or non-union can occur if fracture is undetected or left untreated.
Cubitus valgus is a common complication
Tardy ulnar nerve palsy seen after several years.
Rarely avascular necrosis and myositis ossificans.

1229. Pulled Elbow is:

a) Disarticulation of elbow

b) Disarticulation of elbow

c) Subluxation of proximal radio ulnar joint

d) None of the above

Correct Answer - C

C i.e. subluxation of proximal radio ulnar joint

- If a young child is lifted by the wrist, the *head of the radius may be pulled partly out of the annular ligament, i.e., subluxation of the head of the radius.*

It occurs when *forearm is pronated, elbow is extended and longitudinal traction is applied* to the hand or wrist, e.g., *lifting,* spinning or swinging a child with wrist or hand. Pulled elbow most commonly occurs between the age of *2-5 years*

1230. One of the common fractures that occur during boxing by hitting with a closed fist is ?

a) Monteggia fracture dislocation

b) Galeazzi fracture dislocation

c) Bennett's fracture dislocation

d) Smith's fracture

Correct Answer - C
Ans. is 'c' i.e., Bennett's fracture dislocation
The common mechanism of injury for Benett's fracture is an axial blow directed against the partially flexed metacarpal, in most cases during 'fist fights'.

Benett's fracture

Benett's fracture is an intra-articular fracture dislocation of the *palmar base of first metacarpal bone* of the thumb with either *subluxation or dislocation of first carpometacarpal joint, i.e. trapezometacarpal joint.* The common mechanism of injury is an axial blow directed against the partially flexed metacarpal, in most cases during "Fist fights ". Patient complains of pain, swelling and tenderness over the base of the thumb. Movements of thumb are restricted.
Displacing force in Bennett's fractures
Following are the deforming forces in Bennett's fracture :-
i) At the distal fragment, it is the *adductor pollicis.*
ii) At the proximal fragment, it is the *abductor pollicis longus.*
Base of the thumb metacarpal is pulled dorsally and medially by the abductor pollicis longus, while the distal attachment of adductor

pollicis further levers the base into abduction.

1231. Most common complication of Cones

a) Malunion

b) Avascular necrosis

c) Finger stiffness

d) Rupture of EPL tendon

Correct Answer - C
Answer- C. Finger stiffness
The complication rate is 55%, with the most common complication being some degree of residual finger and wrist stiffness (39%).
Most common complication of colle's fracture- Finger stiffness

1232. Most common complication of fracture neck of femur

a) Malunion

b) AVN

c) Nonunion

d) Arthritis

Correct Answer - B
Answer- B. AVN
AVN is the most common complication of femoral neck fracture. Non-union is the second most common complication of femoral neck fracture.

1233. Which of the following describes grade 2 fracture neck femur?

a) Incomplete fracture, medial trabeculae intact

b) Complete fracture with undisplaced neck

c) Complete fracture with ischemic head

d) Moderate displacement of neck, vascularity damaged

Correct Answer - B
Answer- B. Complete fracture with undisplaced neck
Garden stage I: undisplaced incomplete, including valgus impacted fractures
medial group of femoral neck trabeculae may demonstrate a greenstick fracture
Garden stage II: undisplaced complete
no disturbance of the medial trabeculae

1234. Treatment of choice for fracture neck femur in a 40 years old female

a) Multiple screw fixation

b) Bipolar hemiarthroplasty

c) THR

d) None

Correct Answer - A

Answer- A. Multiple screw fixation

Placement of multiple screws across the fractured femoral neck is the treatment of choice for femoral neck fractures, and may be performed following either closed or open reduction using a standard lateral approach or a more limited percutaneous technique.

1235. Talus is supplied by

a) Anterior tibial artery

b) Posterior tibial artery

c) Dorsal pedis artery

d) All

Correct Answer - D
Answer- D. All
Extraosseous blood supply
1. Posterior tibial artery:- Deltoid branch, artery of the tarsal canal.
2. Anterior tibial artery:- Superior neck branch from Dorsal pedis artery, Artery of tarsal canal.
3. Paroneal artery:- Artery of tarsal sinus.

1236. Commonest ligament injured in ankle injury ?

a) Anterior talofibular ligament

b) Calcaneofibular ligament

c) Posterior talofibular ligament

d) Spring ligament

Correct Answer - A
Ans. is 'a' i.e., Anterior talofibular ligament

- The ankle is one of the most common sites for acute musculoskeletal injuries. Sprains constitute 85% of all ankle injuries, and 85% of those involve a lateral inversion mechanism.
- Inversion Sprain - Inversion ankle sprains occur when the foot turns in or out to an abnormal degree relative to the ankle. The most common mechanism of an ankle sprain is a combination of plantarflexion and inversion where the foot is pointing downward and inward.
- The lateral ligaments are involved in an inversion ankle sprain and hence most commonly damaged. These ligaments are on the outside of the ankle, which includes the anterior talofibular (ATFL), calcaneofibular (CFL) and posterior talofibular ligaments (PTFL). Injury to the ATFL is the most common. When both the ATFL and CFL are injured together, ankle instability will be more noticeable. The PTFL is the strongest of the three ligaments and is rarely injured in an inversion sprain.

1237. Posterior scalloping of vertebrae is not seen

a) Neurofibromatosis

b) Astrocytoma

c) Aortic aneurysm

d) Ependymoma

Correct Answer - C
Answer- C. Aortic aneurysm
Posterior scalloping is the concavity to the posterior aspect of the vertebral body.
Anterior Scalloping is the concavity to the anterior aspect of the vertebral body.

1238. In cervical spine injury, first to be done

a) Trun head

b) Maintain airway

c) Immobilization of spine

d) None

Correct Answer - B
Answer- B. Maintain airway
"Initial care at the accident scene may be critical to survival. The first steps are to establish an airway, maintain oxygenation and immobilize the cervical spine".

1239. In scoliosis degree of deformity is calculated by

a) Cobbs method

b) Hamburger method

c) Haldane method

d) Milwaukee method

Correct Answer - A
Answer- A. Cobbs method
Cobb angle is a measurement of the degree of side-to-side spinal curvature, which is a deformity you may know as scoliosis.

1240. Partial anterior dislocation of one segment of the spine over another is

a) Spondylosis

b) Spondylolisthesis

c) Kyphosis

d) Scoliosis

Correct Answer - B
Answer- B. Spondylolisthesis
Displacement (partial) of one vertebrae over other is called Spondylolisthesis.
Spondylolisthesis is a defect in the pars interarticularis.

1241. In EMG/NCV study, H. reflex correlates with

a) L3 radiculopathy

b) L4 radiculopathy

c) L5 radiculopathy

d) SI radiculopathy

Correct Answer - D
Answer- D. SI radiculopathy
H-Reflex has its utility in investigating patients with S1 radiculopathy.

1242. In axillary nerve paralysis, all the following are true except

a) Deltoid muscle is wasted

b) Extension of shoulder with arm abducted to 90 degrees is impossible

c) Small area of numbness is present over the shoulder region

d) Patient cannot initiate abduction

Correct Answer - D

Answer- D. Patient cannot initiate abduction

Initial 15° of abduction is caused by supraspinatus which is supplied by suprascapular nerve (not axillary nerve).

"At the initiation of abduction from neutral position, the supraspinatus is more important than deltoid, whereas deltoid (middle portion) is of greater importance for elevation of arm at the higher angle of abduction, such as 60°".

1243. Tardy ulnar nerve palsy is seen in

a) Medial condyle # humerus

b) Lateral condyle # humerus

c) Humerus shaft fracture

d) Fracture shaft radius

Correct Answer - B

Ans. is 'b' i.e., Lateral condyle # humerus

Causes of tardy ulnar nerve palsy are : -

1. Malunited lateral condyle humerus fracture (cubitus valgus)
2. Displaced medial epicondyle humerus fracture
3. Cubitus varus deformity (due to supracondylar fracture humerus)
4. Elbow dislocation
5. Contusions of ulnar nerve
6. Shallow ulnar groove
7. Hypoplasia of humeral trochlea
8. Joint deformity after prolonged arthritis of elbow

1244. Cubital tunnel syndrome involves:
March 2013 (c, f)

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Axillary nerve

Correct Answer - B
Ans. B i.e. Ulnar nerve
When the ulnar nerve compression occurs at the elbow, it is called "cubital tunnel syndrome."

1245. Carpal tunnel syndrome all are present except

a) Ulnar nerve dysfunction

b) Tinel sign

c) Phalens sign

d) Pain & paraesthesia of wrist

Correct Answer - A

Answer- A. Ulnar nerve dysfunction

The symptoms often first appear during night, since many people sleep with flexed wrists. (Flexion decreases the space in carpal tunnel which results in increased pressure over median nerve). Sensory symptoms can often be reproduced by percussing over median nerve (Tina's sign) or by holding the wrist fully flexed for a minute (Phalen's test).

As the disease progresses, clumsiness of hand and impairment of digital function develop.

1246. Fairbank triangle is seen in

a) CDH

b) Congenital coxa vara

c) Perthe's disease

d) SCFE

Correct Answer - B
Answer- B. Congenital coxa vara
The epiphyseal plate may be too vertical.
There may be a separate triangle of bone in the inferior portion of the metaphysis, called Fairbank's triangle
[Ref Ebnezar 4th/e p. 410]

1247. Dysplastic hip in a child, investigation of choice

a) X-ray

b) MRI

c) USG

d) CT Scan

Correct Answer - C
Answer- C. USG
Ultrasonography is the investigation of choice for DDH.
It visualizes the cartilage and allows dynamic testing of the hip joint.

1248. Primary pathology in CDH

a) Large head of femur

b) Shallow acetabulum

c) Excessive retroversion

d) Everted limbus

Correct Answer - B

Answer- B. Shallow acetabulum

Following changes are seen in dislocated hip :

1. The femoral head is dislocated upward and laterally. Its bony nucleus appears late and its development is retarded, therefore head is small.
2. Femoral neck is excessively anterverted.
3. Acetabulum is shallow, with a steep sloping roof (This is considered to be the primary pathology).

1249. In neglected cases of CTEV, joint fused are

a) Calcaneocuboid, talonavicular and talocalcaneal

b) Tibiotalar, calcaneocuboid and talonavicular

c) Ankle joint, calcaneocuboid and talonavicular

d) None of the above

Correct Answer - A
Answer- A. Calcaneocuboid, talonavicular and talocalcaneal
Joints fused in triple arthrodesis for CTEVare i) Subtalar (tolocalcaneal) joint, ii) Calcaneocuboid joint, iii) Tolonavicular joint.

1250. Perthe's disease is Osteochondritis of the epiphysis of the:
March 2013 (g)

a) Capitulum

b) Lunate

c) Femoral head

d) Calacaneal tuberosity

Correct Answer - C
Ans. C i.e. Femoral head
Osteochondritis
Perthes disease:
- Osteochondritis of femoral head
- Adduction is unaffected
- IOC for Perthes disease: MRI

- Osteochondritis of lunate: Kienbock's disease
- Osteochondritis of tibial tubercle: OschGood's Schlatter's disease
- Osteochondritis of calcaneum: Sever's disease

1251. Osteonerosis is seen in all except

a) Fracture neck femur

b) Sickle cell anemia

c) Perthe's disease

d) Paget's disease

Correct Answer - D
Answer- D. Paget's disease
Storage disorders : - Gaucher's disease
Caisson disease : - Dysbaric osteonecrosis
Hemoglobinopathy & Coagulation disorder: - Sickel cell disease, Familial thrombophilia, Hypofibrinolysis, Hypolipoproteinemia.
Congenital disorders : - Perthe's disease, Slipped capital femoral epiphysis.
Hematological malignancies : - Leukemia, lymphoma, Polycythemia.
Hyperlipedemia : - Nephrotic syndrome

1252. Best diagnostic modality to diagnose avascular necrosis is:
March 2007

a) MRI scan

b) CT scan

c) X-ray

d) USG

Correct Answer - A
Ans. A: MRI Scan
Avascular necrosis/ osteonecrosis/ aseptic (bone) necrosis/ ischemic bone necrosis is a disease resulting from the temporary or permanent loss of the blood supply to the bones. Without blood, the bone tissue dies and causes the bone to collapse. There are many causes of avascular necrosis such as:

- Alcoholism
- Excessive steroid use
- Post trauma
- Caisson disease (decompression sickness)
- Vascular compression
- Vasculitis
- Thrombosis
- Damage from radiation
- Bisphosphonates (particularly the mandible)
- Sickle cell anaemia
- Gaucher's Disease
- Idiopathic (no cause is found).

Rheumatoid arthritis and lupus are also common causes of AVN.
Avascular necrosis most commonly affects the head of femur. Other

Avascular necrosis most commonly affects the head of femur. Other common sites include the talus, scaphoid and the jaw. Avascular necrosis usually affects people between 30 and 50 years of age. When it occurs in children at the femoral head, it is known as Legg-Calve-Perthes syndrome.
It is most oftenly diagnose clinically.
Because early X-rays are usually normal in the early stage of the disease, bone scintigraphy and MRI are the diagnostic modality of choice since both can detect minimal changes at early stages of the disease.
Late radiographic signs include a radiolucency area following the collapse of subchondral bone (crescent sign) and ringed regions of radiodensity

1253. After chronic use of steroids severe pain in right hip with immobility is due to

a) Avascular necrosis

b) Perthes disease

c) Hip dislocation

d) Osteoarthritis

Correct Answer - A

Answer- A. Avascular necrosis

Pain in hip and limitatation of movement (immobility) ofter chronic use of steroids suggest the diagnosis of AVN of femoral head.

1254. In elbow, osteochondritis usually involves

a) Olecranon

b) Trochlea

c) Radial head

d) Capitulum

Correct Answer - D
Answer- D. Capitulum
Knee- Lateral surface of the medial femoral condyle
Elbow- Capitulum of humerus
Hip- Femoral head
Ankle- Talus

1255. Most common organism causing infection after open fracture

a) Pseudomonas

b) Staphylococcus aureus

c) Klebsiella

d) Gonococcus

Correct Answer - A
Answer- A. Pseudomonas
staphylococcus aureus was the most common organism causing infection in open fractures. More recent studies have shown that gram negative organisms such as pseudomonas aeruginosa and E.coli are becoming more common

1256. Septic arthritis is diagnosed by

a) X-ray

b) Joint aspiration

c) USG

d) MRI

Correct Answer - B
Answer- B. Joint aspiration
Quickest and best method of diagnosis of septic arthritis is aspiration of joint.

1257. Sequestrum is best defined as

a) A piece of dead bone

b) A piece of dead bone surrounded by infected tissue

c) A piece of bone with poor vascularity

d) None

Correct Answer - B
Answer- B. A piece of dead bone surrounded by infected tissue
Sequestrum is a piece of dead bone, surrounded by infected granulation tissue.

1258. Cloacae are present in

a) Sequestrum

b) Involucrum

c) Normal bone

d) Myositis

Correct Answer - B
Answer- B. Involucrum
Involucrum is reactive new bone overlying a sequestrum. There may be some holes in the involucrum for pus to drain out. These holes are called cloaca.

1259. Complication of joint TB

a) Fibrous ankylosis

b) Bony ankylosis

c) Normal healing

d) None

Correct Answer - A
Answer- A. Fibrous ankylosis
The outcome of tubercular arthritis is fibrous ankylosis, except in spine. Spine is the only site where tuberculosis heals with bony ankylosis.

1260. False about Pott's spine

a) Commonest at dorsolumbar junction

b) Always heals by chemotherapy

c) Back pain is an early symptom

d) There is disc space narrowing on x-ray

Correct Answer - B
Answer- B. Always heals by chemotherapy
Chemotherapy is the mainstay of treatment. But it is not effective always, surgery is often required in some cases.
Commonest site of pott's spine is dorsolumbar junction.
Back pain is the earliest symptom and narrowing of disc space is the earliest radiological sign.

1261. Apparent lengthening is seen in which stage of TB Hip

a) Stage I

b) Stage II

c) Stage III

d) None

Correct Answer - A
Answer- A. Stage I
Stage of synovitis (Stage 1) : - Three is effusion in the hip joint which demands the hip to be in a position of maximum capacity. This position is acquired by flexion, abduction and external rotation. Because of abduction deformity, there is apparent lengthening.

1262. Tuberculosis spine; most common site is

a) Sacral

b) Cevical

c) Dorsolumbar

d) Lumbosacral

Correct Answer - C
Answer- C. Dorsolumbar
The most common site is Dorsolumbar region. Lower dorsal (thoracic) region is the most common segment involved followed by lumbar segment. The tuberculosis of spine is also called pott's disease or tubercular spondylytis.

1263. Anterolateral decompression is done for

a) Spinal tuberculosis

b) Chest TB

c) Hand TB

d) Foot TB

Correct Answer - A
Answer- A. Spinal tuberculosis
Anterior decompression can be caused by : -
1. Anterior approach : - Called anterior decompression. It is the most preferred procedure.
2. Anterolateral approach : - Called anterolateral decompression.

1264. Tumor with maximum bone matrix

a) Osteoid osteoma

b) Chondrosarcoma

c) Enchondroma

d) None

Correct Answer - A
Answer- A. Osteoid osteoma
Dense, homogenous mineralization (calcification) is typical of osteoid matrix, formed by benign and malignant bone forming lesions.

1265. Which of the following is true about Giant cell tumor

a) Usually presents as a lytic lesion with sclerotic rim

b) Always beingn

c) Epiphyseal origin

d) Seen in age less than 15 years

Correct Answer - C

Answer- C. Epiphyseal origin

GCT is an osteolytic tumor arising from the epiphysis and is common between the age of 20-40 years.

The commonest sites are lower end of femur and upper end of tibia. Other common sites are lower end radius and upper end of humerus. It may also occur in the spine and sacrum.

The radiological features are : -

1. A solitary may be loculated, lytic lesion.
2. Eccentric location, often subchondral.
3. Expansion of the overlying cortx (expansile lesion).
4. Soap-bubble' appearance

1266. Striated vertebra is seen in

a) TB spine

b) Haemangioma

c) Chordoma

d) Metastasis

Correct Answer - B

Answer- B. Haemangioma

Haemangioma of the vertebra has a typical radiographic picture in the form of loss of horizontal striations and prominence of vertebral striations. There is Polka dot appearance on CT.

In the skull, hemangioma generally affects the calverium and is seen as an expansile lytic lesion which has a sunburst appearance with striation radiating from the centre.

A hemangioma may be identified due to associated phlebolith and it may cause local gigantism of the invovled area.

1267. Metastasis not found in

a) Femur

b) Humerus

c) Fibula

d) Spine

Correct Answer - C
Answer- C. Fibula
Metastatic bone disease is the commonest malignancy of bones and is much more common than primary bone tumors.
The commonest sites for bone metastases are vertebrae (most common), pelvis, the proximal half of the femur and the humerus.
Extremities distal to elbow and knee are least commonly involved sites.
Spread is usually via the blood stream; occasionally, visceral tumors spread directly into adjacent bones e.g., the pelvis and ribs.

1268. Periosteal reactions is seen in

a) Osteomyelitis

b) Syphilis

c) Tumor

d) All

Correct Answer - D
Answer- D. All
Infection :- Osteomyelitis, Brodie's abscess, syphilis
Neoplasms
Benign : Osteoid osteoma
Malignant : Ewing's sarcoma, osteosarcoma
Eosinophilic granuloma
Healed stress fracture
Hypertrophic pulmonary osteoarthropathy

1269. Volkmanns contracture, which artery is involved

a) Radial

b) Brachial

c) Ulnar

d) Interosseus

Correct Answer - B
Answer- B. Brachial
Injury to brachial artery may cause nerve and muscle ischemia (Volkmann's ischemia of flexor compartment) or may result in postischemic swelling due to edema or hemorrhage, thereby causing compartment syndrome, which can cause, if not treated immediatealy, Volkmann's ischaemic contracture later on.

1270. Cast syndrome is due to

a) Above elbow cast

b) Below elbow cast

c) Hip Spica

d) Above knee cast

Correct Answer - C
Answer- C. Hip Spica
Cast syndrome (Superior mesentric artery syndrome) is gastric dilatation with partial or complete obstruction of the duodenum.
It is most frequently seen in orthopaedics patients who have had spinal surgery or who are in hip spica or body casts.

1271. Heterotopic ossification occurs in

a) Bone

b) Joint

c) Soft tissue

d) None

Correct Answer - C
Answer- C. Soft tissue
Heterotopic ossification is the process by which bone tissue is formed in soft tissue outside the skeleton.

1272. Felon most common complication

a) Osteomyelitis

b) Subungual hematoma

c) Infective arthritis

d) None

Correct Answer - A
Answer- A. Osteomyelitis
Felon is the infection of distal pulp space. Next to acute paranychia, this is the most common hand infection. It usually follows a pinprick, with index finger and thumb being the common unfortunate victim. The patient initially complains of dull pain and swelling. Complications are osteomyelitis (most common), skin necrosis, osteonecrosis of digits and rarely tenosynovitis or infective arthritis of DIP joint.

1273. Felon/ Whitlow *is:*
September 2012

a) Midpalamr space infection

b) Terminal pulp space infection

c) Infection of the ulnar bursa

d) Infection of the radial bursa

Correct Answer - B
Ans. B i.e. Terminal pulp space infection
a painful abscess of the deep tissues of the palmar surface of the fingertip that is typically caused by bacterial infection (as with a staphylococcus) and is marked by swelling and pain

1274. **Tension band wiring is indicated in fracture of which of the following ?**

a) Fracture humerus

b) Olecranon

c) Fracture tibia

d) Fracture spine

Correct Answer - B

Tension band wiring is indicated in the treatment of two types of olecranon fracture. First type is a clean break with separation of the fragments, and second type is comminuted fracture of the olecranon with displced fragments.

A crack in the olecranon without displacement is treated by immobilising the elbow in an above elbow plaster slab in 30 degrees of flexion.

1275. Most common bone for which nailing is done

a) Radius

b) Ulna

c) Tibia

d) Humerus

Correct Answer - C
Answer- C. Tibia
Most common bones for which intramedullary nailing is done are Tibia and femur.

1276. Knuckle bender splint is used for:
September 2009

a) Ulnar nerve palsy

b) Radial nerve palsy

c) Median nerve palsy

d) Axillary nerve palsy

Correct Answer - A

Ans. A: Ulnar Nerve Palsy

- Cock-up splint • Radial nerve palsy
- Knuckle-bender splint • Ulnar nerve palsy

1277. Why fracture shaft femur is early stabilised

a) To prevent blood loss

b) ARDS

c) Non union

d) Compartment syndrome

Correct Answer - A
Answer- A. To prevent blood loss
Fracture shaft femur can cause upto 2L of blood loss and severe hypotension, if not immoblized early.
the fracture shaft femur should be immoblized early. This can be temporary immobilization by TT splint followed by surgery or can be by immediate surgery.

1278. Drug used in osteoarthritis

a) Methotrexate

b) Glucosamine

c) Sulfasalizine

d) All

Correct Answer - B
Answer- B. Glucosamine
Chondroitin sufate
Disease modifying anti-osteoarthritis drugs (DMAOAD) Diacerin (IL-1 antagonist), Licofelone (combined COX-LOX inhibitors)
Steroids (in acute exacerbations).

1279. Pannus is seen in

a) OA

b) RA

c) Gout

d) None

Correct Answer - B
Answer- B. RA
Pannus is seen in rheumatoid arthritis.
It is neoplasm-like growth of inflammed synovial tissue that leads to destruction of joint structures.
The articular cartilage at pannus interface appear to undergo chondrolysis.
Pannus appear to develop within and around the synovium, subsequently creeping into and over the articular cartilage and enveloping it and the underlying bone in a deathlike grasp.

1280. Sausage digits is seen in

a) Lyme arthritis

b) Osteoarthritis

c) Psoriatic arthritis

d) None

Correct Answer - C
Answer- C. Psoriatic arthritis
Sausage digit refers to diffuse fusiform swelling of the digit due to soft tissue inflammation from underlying arthritis or dactylitis.
Causes are :-

- Psoriatic arthritis
- Osteomyelitis
- Sickle cell anemia
- Sarcoidosis
- Tubercular dactylitis (spina ventosa)

1281. Green stick fracture is

a) Fracture in adults

b) Complete fracture

c) Incomplete fracture

d) Fracture spine

Correct Answer - C
Answer- C. Incomplete fracture
A greenstick fracture is an incomplete transverse fracture pattern seen in children.

1282. Resorption of distal phalanx is seen in

a) Scleroderma

b) Hyperparathyroidism

c) Reiter's syndrome

d) All

Correct Answer - D
Answer- D. All
Acro-osteolysis is the term used to describe resorption of the distal phalangeal tufts. Causes are : -
1. Scleroderma
2. Trauma & thermal injury
3. Hyperparathyroidism
4. Epidermolysis bullosa
5. Arthropathy (RA, Psoriasis)
6. Neuropathy (diabetes, syringomyelia)
7. Raynaud's disease
8. Reiter's syndrome

1283. Severely anaemic pregnant patient in cardiac failure. Choice of transfusion?

a) Platelets

b) Packed cells

c) Whole blood

d) Exchange transfusion

Correct Answer - B
Ans. B. Packed cells

1284. Hydrops fetalis is due to ?

a) Rh mismatch

b) Hyperproteinemia

c) Placental hypoplasia

d) All of the above

Correct Answer - A
Ans. A. Rh mismatch

1285. Caput succedaneum indicates that fetus was alive till ?

a) Immediately after birth

b) Till 2-3 days after birth

c) 2-3 weeks after birth

d) 2-3 months after birth

Correct Answer - A

Ans. A. Immediately after birth

CaPut succedaneum

- Formation of swelling due to stagnation of fluid in the layers of scalp beneath the girdle of contact.
- Boggy diffuse swelling, not limited to midline.
- Disappears spontaneously within 24 hours.
- Usually occurs after rupture of membranes.

1286. Caput succedeum is said to occur in baby?

a) Within 24 hrs

b) 2-3 days

c) 2-3 weeks

d) 2-3 months

Correct Answer - A
Ans. A. Within 24 hrs

1287. Most of ectopic pregnancies are at ampulla as?

a) It is the narrowest part

b) Tubal movements are least here

c) Salpingitis produces least crypts here

d) Plicae are most numerous here

Correct Answer - D
Ans, D. Plicae are most numerous here

1288. Best to diagnose unruptured ectopic pregnancy ?

a) Scopy

b) UPT

c) USG

d) Culdocentesis

Correct Answer - A
Ans, A. Scopy

1289. Definitive treatment for preeclampsia?

a) Delivery of baby

b) Antihypertensive drugs

c) Rest

d) Diet

Correct Answer - A
Ans, A. Delivery of baby

1290. Which is least injured in gynaecological procedures?

a) Ureter at pelvic brim

b) Renal pelvis

c) Urinary bladder

d) Ureter at infundibulopelvic ligament

Correct Answer - B
Ans. B. Renal pelvis
Urinary bladder & pelvic ureter are vulnerable to injury during gynecologicalsurgery.

1291. Which of the following cannot be treated by laparoscopy-

a) Ectopic pregnancy

b) Sterilization

c) Non descent of uterus

d) Genital prolapsed

Correct Answer - C
Ans, C. Non descent of uterus

1292. Most common degeneration of fibroids ?

a) Calcareous

b) Hyaline

c) Red

d) Cystic

Correct Answer - B
Ans B. Hyaline
Most common degeneration overall _ hyaline

1293. Definitive management of Adenomyosis is?

a) GNRH analogue

b) Danazole

c) LH

d) Hysterectomy

Correct Answer - D
Ans, D. Hysterectomy
Hysterectomy is the treatment of choice.
Local resection can be tried in younger women in whom it is localized.
Medical treatment oPtions are NSAIDS & hormonal therapy, though not much effective
GnRH, danazole, Mirena IUCD for menorrhagea & pain.

1294. Bartholin's cyst treatment of choice -

a) Excision

b) Antibiotics

c) Marsupialisation

d) Drainage

Correct Answer - C
Ans. C. Marsupialisation

1295. Hydronephrosis is seen in which stage of Ca cervix?

a) 2a

b) 2b

c) 3a

d) 3b

Correct Answer - D
Ans, D. 3b

1296. Endometrial carcinoma involving cervix, stage is?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B
Ans, B. 2

1297. Diagnosis of adenomyosis is made by ?

a) Histopathology

b) Ultrasound

c) MRI

d) Laproscopy

Correct Answer - D
Ans, D. Laproscopy

1298. Initial drug for ovarian cancer ?

a) Cisplatin

b) Doxorubicin

c) Ifosfamide

d) Methotrexate

Correct Answer - A
Ans, A, Cisplatin

1299. Fallopian tube tuberculosis ?

a) Most common type of genital TB

b) Size of the tubes is unchanged

c) Is asymptomatic

d) Primary focus of infection is always in fallopian tubes

Correct Answer - A:C
Ans, A>C. Is asymptomatic > Most common type of genital TB
Most common type of genital TB > Is asymPtomatic

1300. TB uterus all is true except?

a) Mostly secondary

b) Increase incidence of ectopic pregnancy

c) Involvement of endosalpinx

d) Most common is ascending infection

Correct Answer - D
Ans, D. Most common is ascending infection

1301. Gold standard diagnostic technique for diagnosis of endometriosis?

a) Laproscopy

b) Ca 125 level

c) Ultrasound

d) MRI

Correct Answer - A
Ans, A. Laproscopy
Investigations for endometrioses
Laproscopyisconsideredasgold standard.
Usedasboth diagnostic aswellastherapeutic technique.
1. CA-f 25 is raised > 35 u/ml
2. Ultrasound
3. CT&MRI
4. Color DoPPler
5. CYstoscoPY

1302. Most common site of endometriosis -

a) Ovary

b) FT

c) Colon

d) LSCS Scar

Correct Answer - A
Ans, A. Ovary

1303. Asherman's syndrome false is ?

a) Associated with menstrual irregularities

b) Progesterone challenge test is positive

c) Synechiae formation in uterus

d) May be secondary to TB

Correct Answer - B
Ans, B. Progesterone challenge test is positive

1304. 35 year old with history of repeated D&C. She now has secondary amenorrhea. What is your diagnosis?

a) Hypothyroidism

b) Kallman syndrome

c) Sheehan's syndrome

d) Asherman's syndrome

Correct Answer - D
Ans, D. Asherman's syndrome

1305. Emergency contraceptive should must be started with in how much time after unprotected intercourse?

a) 24 hrs

b) 48 hrs

c) 72 hrs

d) 96 hrs

Correct Answer - C
Ans, C. 72 hrs
Morning aftn pill : ethinyl-estrediol 2.5 mg, premarin 15 mg, the drug is taken orally twice daily for 5 days.
Beginning soonafter e4tosure but not latcr than 72 hrs."

1306. I-pill is used when ?

a) Accidental sexual exposure

b) OCP forgotten

c) Of choice in young

d) All of the above

Correct Answer - A

Ans. A. Accidental sexual exposure

I-pill

- I-pill is an emergency contraceptive Pill containing levonorgestrel.
- Asingledoseof I pillprovidesasafeandeasywaytopreventanunintended pregnancy,afterunprotected sex orcontraceptivefailure.
- It should be take i-pill as soon as possible, preferably within 12 hours and no later than 72 hours ofunprotected intercourse.
- Single dose tablet to be taken orally after a meal.

1307. Cholestasis of pregnancy false is ?

a) Bilirubin level >2mg%

b) Most common cause of jaundice in pregnancy

c) Oestrogen is involved

d) Manifestations usually appear in last trimester

Correct Answer - B
Ans. B. Most common cause of jaundice in pregnancy

1308. Least failure rate is of ?

a) OC pills

b) IUDs

c) Condom

d) DMPA

Correct Answer - A
Ans. A. OC pills
Oral contraceptive pills have least chances of pregnancy as they have minimum failure rate (evaluated by pearl index).

1309. Failure rate of Pomeroy's method of tubal ligation is ?

a) 0.2%

b) 0.4%

c) 0.6%

d) 0.8%

Correct Answer - B
Ans, B. 0.4%
The failure rate is 0.4% and it k mainly due to spontaneous canalization".

1310. Maximum success after reversal of tubal ligation?

a) Cauterization

b) Pomeroy's technique

c) Clip method

d) Fimbriectomy

Correct Answer - C
Ans, C. Clip method
The Falope sialistic ring destroys 2-3 cm fallopian tube. The Hulka& Filshie clips destroya smaller segment (3-4mm)' thus preserving the potential of successful reversal of surgery. The failure rate varies between .2 and 15%"

1311. If 300 microgram anti D is given to mother , amount of blood it will neutralise ?

a) 30m1

b) 40m1

c) 50m1

d) 60m1

Correct Answer - A
Ans, A. 30m1

1312. Tdap vaccine is give in between which weeks of pregnancy?

a) 10-16 weeks

b) 17-22 weeks

c) 22-26 weeks

d) 27-36 weeks

Correct Answer - D
Ans, D. 27-36 weeks
Women should get adult tetanus, diphtheria and acellular pertussis vaccine (Tdap) during each pregnancy. Ideally, the vaccineshould be given between 27 and 36 weekes ofpregnancy".

1313. Least diameter of inlet of gynecoid pelvis is?

a) Transverse

b) Oblique

c) Diagonal conjugate

d) Obstetric conjugate

Correct Answer - D
Ans, D. Obstetric conjugate

1314. Which of following most commonly clinically used?

a) Diagonal conjugate

b) Ant post diameter of inlet

c) Transverse diameter of outlet

d) Oblique diameter of pelvis

Correct Answer - A
Ans, A. Diagonal conjugate
Most commonly used clinical conjugate is Diagonal conjugate.

1315. Definite use for PGE2 is all except ?

a) Contraception

b) Induces labour

c) Therapeutic abortion

d) Keeps patency of PDA

Correct Answer - A
Ans. A. Contraception

1316. All of the following occurs because of prostaglandin use except?

a) Excess water retention

b) Flushes

c) Increased motility of bowel

d) Nausea

Correct Answer - A
Ans, A. Excess water retention
Disadvantages & side effects of prostaglandins
1. Cost
2. Nausea, vomiting, diarrhea, pyrexia, bronchospasm, tachycardia & chills
3. Cervical lacerations (PGF-2alpha)
4. Tachysystole (hyperstimulation) of uterus
5. Riskofuterine rupture in case ofuterine scar.

1317. Methergin is given for prophylaxis of ?

a) Anaemia

b) Cardiac disease

c) Renal disease

d) Lung disease

Correct Answer - A

Ans, A. Anaemia

Methergin (methyl-ergo-novine) is a semisynthetic ergot derivative derived from lysergic acid.

Indications

1. Prophylactic : Active management of3rd stage oflabour to prevent excess bleeding following delivery (note-bleeding causes anemia).
2. Therapeutic: To stop atonic uterine bleeding.

1318. HRT is given in ?

a) Symptomatic postmenopausal women

b) Following hysterectomy

c) Gonadal dysgenesis

d) All of the above

Correct Answer - D

Ans, D. All of the above

Indications of HRT

1. Symptomatic women suffering from oestrogen deficiency.
2. High risk cases of menopausal complications such as cardiovascular disease, osteoporosis, stroke, Alzheimer disease & colonic cancer (prophylactic).
3. Premature menopause, spontaneous or following surgery (prophylactic).
4. Gonadal dysgenesis in adolescents. (therapeutic)

1319. A pregnant woman in first trimester has four fold rise in IgG against toxoplasmosis. it indicates ?

a) Protective antibodies

b) Acute infection

c) Chronic infection

d) None of the above

Correct Answer - B

Ans, B. Acute infection

Acute infection is detected by detecting IgM specific antibody high titre of IgG antibody & detection of sero-conversion for IgG from negative to positive

1320. Drug of choice for pneumocystis carinii in pregnancy?

a) SMZ/TMP

b) Primaquine

c) Dapsone

d) Pentamidine

Correct Answer - A
Ans, A. SMZ/TMP

1321. Maximum chance of transmission during delivery?

a) HSV

b) CMV

c) VZV

d) Rubella

Correct Answer - A
Ans. A. HSV
"Transplacental infection by HSV is not usual.
The fetus becomes affected by virus shed from the cervix or lower genital tractduring vaginal delivery."

1322. 6 year old son of pregnant women is suffering from chicken pox. Which of the following is given to pregnant women ?

a) Acyclovir

b) Acyclovir + immunoglobulin

c) Only immunoglobulin

d) Vaccination

Correct Answer - B

Ans. B. Acyclovir + immunoglobulin

Varicella during pregnancy

- The risk of congenital malformations is nearly absent when maternal infection occurs after 20 weeks.
- Varicela vaccine is not recommended in pregnancy.
- Varicella zoster immunoglobulin (VZIG) should be given to exposed non-immune as it reduces the mortality.
- Oral acyclovir is safe in pregnancy & reduces the duration of illness when given with in 24 hrs of rash but it cannot prevent congenital infection.

1323. Prophylactic methergin given for ?

a) Induction of labour

b) Induction of abortion

c) To stop excess bleeding from uterus

d) All of the above

Correct Answer - C

Ans, C. To stop excess bleeding from uterus

Methergin (methyl-ergo-novine) is a semisynthetic ergot derivative derived from lysergic acid.

Indications

- Prophylactic:- Active management of 3rd stage of labour to prevent excess bleeding following delivery.
- Therapeutic:- To stop atonic uterine bleeding.

1324. DOC for malaria in pregnancy ?

a) Chloroquin

b) Quinine

c) Primaquin

d) Artesunate

Correct Answer - A

Ans, A. Chloroquin

Drugs for treatment of malaria in pregnancy-

- Malaria can be life threatening during pregnancy.
- Chloroquin is 1st choice of drug.
- If resistant to chloroquin, quinine should be given under supervision.
- Primaquin (for radical cure) should be withheld until the pregnancy is over.
- Artesunate is the 1st choice in case of complicated malaria.

1325. For uterine prolapse in pregnancy, Ring pessary can be inserted upto ?

a) 12 weeks

b) 14 weeks

c) 16weeks

d) 18 weeks

Correct Answer - D

Ans. D. 18 weeks

Pessary treatment for ProlaPse

- It does not cure the prolapse, only gives symptomatic relief by stretching the hiatus genitalis, thus preventing the uterine & vaginal descent.

Indications of PessarY

- EarlY Pregnancy - uPto 18 weeks
- PuerPerium
- Patients absolutely unfit for surgery
- Patients unwilling for operation
- While waiting for surgery
- Additional benefits like improvement of urinary symptoms

1326. Not a method for delivery of after-coming head of breech ?

a) Forceps method

b) Burns and Marshall method

c) Malar flexion and shoulder traction

d) Half hand method

Correct Answer - D
Ans. D. Half hand method
Methods of delivery of aftercoming head are

- Burns - Marshall method
- ForcePs delivery
- Malar flexion and shoulder traction (modified Mauriceau-Smellie-Veit technique)

1327. Investigation of choice in post menopausal bleeding?

a) PAP smear

b) Laproscopy

c) Fractional curettage

d) Ultrasound

Correct Answer - C
Ans., C. Fractional curettage

1328. Preferred IUD for menorrhagea ?

a) NOVA T

b) Cu IUD

c) Mirena

d) Gyne fix

Correct Answer - C
Ans. C. Mirena

1329. Preferred treatment for menorrhagea in reproductive age group?

a) NOVA T

b) Cu IUD

c) OCPs

d) Hysterectomy

Correct Answer - C
Ans. C. OCPs

1330. Drug not used commonly for menorrhagea ?

a) Methergin

b) Clomiphene

c) GnRH

d) NSAIDS

Correct Answer - A
Ans. A. Methergin

1331. Drug causing abruption placenta ?

a) Methadone

b) Cocaine

c) Amphetamine

d) Fluoxetine

Correct Answer - B
Ans. B. Cocaine

1332.

Classical C section indicated in ?

a) CA Cervix

b) Central placenta praevia

c) Failed induction

d) Fetal distress

Correct Answer - A
Ans. A. CA Cervix

1333. Definitive indication of LSCS ?

a) Mento ant

b) Contracted pelvis

c) Occipito posterior

d) Vertex

Correct Answer - B
Ans, B. Contracted pelvis

1334. After delivery upto which week is known as puerperium?

a) 2 weeks

b) 4 weeks

c) 6 weeks

d) 8 weeks

Correct Answer - C

Ans. C. 6 weeks

- Immediate puerperium: 24 h
- Early puerperium: upto 1 week
- Remote puerperium: upto 6 weeks

1335. Vacuum delivery produces?

a) Chingon

b) Cephalhematoma

c) Both

d) None

Correct Answer - C
Ans, C. Both

1336. 45 yr old female patient underwent hysterectomy, on 7th post op day complaints about continuous dribbling of urine and fever. Micturition was not voluntary, what diagnosis?

a) Vesico vaginal fistula

b) Uretero vaginal fistula

c) Vesico uterine fistula

d) Urethra vaginal fistula

Correct Answer - C

Ans, C. Vesico uterine fistula

Fetal complications of vacuum delivery

- SuPerficial scalloP abrasions
- Sub-aPoneurotic haemorrhage
- Retinal haemorrhage

1337. Placenta previa, false is ?

a) Most common cause of APH

b) Painful vaginal bleeding

c) Usg is the investigation of choice

d) Increased maternal age is a risk factor

Correct Answer - A
Ans. A. Most common cause of APH

1338. Exclusively Fetal blood loss occurs in ?

a) Vasa previa

b) Placenta praevia

c) Polyhydramnios

d) Oligohydramnios

Correct Answer - A
Ans. A. Vasa previa

1339. Prolapsed of uterus in nulliparous women, treatment is?

a) Sling used involving rectus sheath

b) Anterior colporrhaphy

c) Posterior colporrhaphy

d) Manchester operation

Correct Answer - A
Ans., A. Sling used involving rectus sheath

1340. All are causes of anovulatory amenorrhoea except?

a) PCOD

b) Hyperprolactemia

c) Gonadal dysgenesis

d) Drugs

Correct Answer - C

Ans. C. Gonadal dysgenesis

Causes of anovulatory amenorrhea

- PCOD
- Hyperprolactinaemia
- Weight loss, stress, exercise
- Drugs
- Chest wall stimulation

1341. What is false about post menopausal state ?

a) Low LH

b) Low estrogen

c) High FSH

d) High androgen

Correct Answer - A

Ans. A. Low LH

Hormonal changes in post-menoPausal state

- FSH level is increased
- Oestrogen level is decreased & most of it is synthesised peripherally by conversion of androgen to oestrogen
- Androgen level is slightly increased

1342. In a postmenopausal female, which hormone increases?

a) FSH

b) Estrogen

c) GH

d) None of the above

Correct Answer - A
Ans, A. FSH

1343. Role of lactobacilli in vaginal secretions

a) To maintain alkaline pH

b) To maintain acidic pH

c) Nutrition

d) None

Correct Answer - B
Ans., B. To maintain acidic pH
The importance of Doderlein's bacillus is that its presence is associated with production of lactic acid contained in the vaigna and this acidity inhibits the growth of other organisms."
Doderlein's bacillus is the only organism which will grow at the pH of 4-4.5 (normal pH of vagina).

1344. Hegar sign all are true except ?

a) Bimanual palpation method

b) Difficult in obese

c) Can be done at 14 weeks

d) Present in 2/3rd of cases

Correct Answer - C

Ans. C. Can be done at 14 weeks

Hegar's sign: Present in2/3rd of cases. Demonstrated between 6-10 weeks, a little earlier in multipara. This sign is based on the 2 facts (1) upper part of the body of uterus is enlarged by growing uterus and lower part is empty and soft and cervix is comparatively film. Therefore on bimannual examination (2 fingers in the anterior fornix and abdominal fingers behind the uterus), abdominal and vaginal fingers seem to appose below the body ofthe uterus.

1345. Hegar sign is seen in how many weeks ?

a) 6-10 weeks

b) 10-14 weeks

c) 14-18 weeks

d) 18-22 weeks

Correct Answer - A
Ans. A. 6-10 weeks

1346. Palmer sign is related to ?

a) Contraction of uterus

b) Dusky hue of ant vaginal wall

c) Bluish discolouration of ant vaginal wall

d) Increased pulsations felt through lateral fornix

Correct Answer - A
Ans, A, Contraction of uterus
Palmer sign:-regular and rhythmic contractions can be elicited during bimanual examination as early as 4-8 weeks.

1347. New born can be given breast milk after how much time following normal delivery?

a) Half hour

b) 1 hours

c) 2 hours

d) 3 hours

Correct Answer - A

Ans A. Half hour

A healthy baby is put to the breast immediately or at most % to 1 hr following normal delivery.

Following caesarean sections a period of 4-6 hours may be sufficient for the mother to feed her baby.

1348. 4 month amenorrhoea with increased FSH, LH & decreased estrogen in a 35 yrs old?

a) Premature menopause

b) Menopause

c) Late menopause

d) Perimenopause

Correct Answer - A

Ans, A. Premature menopause

Premature menopause is defined as ovarian failure occurring 2 SD in years before the mean menopausal age in a population.

It is clinically defined as secondary amenorrhea for at least 3 months with raised FSH level, raised FSH:LH ratio & low E2 level in a women under 40 yrs of age."

1349. 35 yr old with 4 months amenorrhea with increased FSH, decreased estrogen. What is the diagnosis?

a) Premature ovarian failure

b) PCOD

c) Pituitary failure

d) Hypothalamic failure

Correct Answer - A
Ans. A. Premature ovarian failure
It is a case of premature menoPause (premature ovarian failure)'

1350. Contraction stress test false is ?

a) Oxytocin not used

b) Invasive method

c) Detects fetal well being

d) Negative test is associated with good fetal outcome

Correct Answer - A

Ans, A. Oxytocin not used

Contraction stress test (CST) (syn : Oxytocin challenge test):

- It is an invasive test to asses fetal respiratory well being during pregnancy.
- It detects alteration in FHR in response to uterine contraction induced by oxytocin indicating hypoxia.

Interpretations

- Negative test indicated good outcome

1351. NST, what is seen except?

a) Variability

b) Acceleration

c) Time period

d) Oxytocin

Correct Answer - D
Ans, D. Oxytocin
The non-stress test (NST) measures fetal heart rate, which is monitored with an external transducer for at least 20 minutes. During fetal movement, tracing is observed for heart rate acceleration.
Test is positive if two or more fetal heart rate accelerations occurs in 20 minute period.

1352. Menstrual regulation effective upto ?

a) 14 days

b) 21 days

c) 4weeks

d) 6 weeks

Correct Answer - A
Ans, A. 14 days
Menstrual regulation (Induction/Aspiration)
Aspiration of endometrial cavity within l4 days of missed period in a woman with previous normal cycle.
Done as an OPD procedure.
Helps to detect failed abortion, molar pregnancy or ectopic Pregnancy.
Contraindicated in advanced pregnancy & in presence of local pelvic inflammation.

1353. pH of vagina in pregnant woman is usually ?

a) 4.0

b) 4.5

c) 5

d) >5

Correct Answer - A
Ans. A. 4.0
The vaginal acidity is due to lactic acid.
The normal pH in the healthy women of the child bearing age group is 4.5

1354. Vaginal pH before puberty is?

a) 7

b) 6

c) 4.5

d) 5

Correct Answer - A
Ans. A. 7

1355. Decidual reaction is due to which hormone ?

a) Progesterone

b) Estrogen

c) LH

d) FSH

Correct Answer - A
Ans. A. Progesterone
Increased structural & secretory activity of the endometrium that brought about in response to progesterone following implantation is known as Decidual reaction".

1356. Inhibin levels are checked on which day of menstrual cycle ?

a) Day 3

b) Day 4

c) Day 5

d) Day 6

Correct Answer - A

Ans. A. Day 3

Ovarian reserve test is designed to assess both the number of immature eggs in the ovaries and their quality, which gives an indication of woman's potential fertility.

It works by detecting the levels of three female hormones, using a blood sample taken on day three of menstrual cycle:

1. Follicle stimulating hormone (FSH)
2. Anti-mullerian hormone (AMH)
3. Inhibin-B

1357. Best test for ovulation ?

a) Serum estrogen

b) Serum progesterone

c) Both

d) None

Correct Answer - B
Ans. B. Serum progesterone
Plasma concentration of progesterone rises after ovulation & reaches peak of 15 ng/ml at mid luteal phase & then declines as the corpus luteum degenerates".

1358. Cardiac output increases maximum at which week?

a) 26-28wks

b) 30-32 wks

c) 32-34 wks

d) 34-36 wks

Correct Answer - C
Ans. C. 32-34 wks
Cardiac output:

- Starts to increase from 5th week of pregnancy, reaches its peak 40-50% at about 30-34 weeks.

1359. In pregnancy plasma volume increased maximum at what gestational age?

a) 10 wks

b) 20 wks

c) 25 wks

d) 30 wks

Correct Answer - D
Ans, D. 30 wks
Plasma volume is increased. Starting to increase at 6 weeks & reaching max upto 50% at 30 weeks. Total plasma volume increases to the extent of 1.25 litres.

1360. 5 month pregnant female, which of the following is true?

a) 50% have soft systolic murmur

b) Cardiac output is reduced

c) Systemic vascular resistance is increased

d) Increase in CVP

Correct Answer - A

Ans. A. 50% have soft systolic murmur

Anatomical changes during pregnancy

- Heart is pushed upwards & outward. Apex beat is shifted in 4th intercostals space.
- A systolic murmur can be heard in apical or pulmonary area.
- Mammary murmur is a continuous hissing murmur audible over tricuspid area in left 2nd & 3rd iintercostals space.
- ECG shows left axis deviation. 53 and rarely 54 can be heard.

1361. Spinnbarkeit is maximum shown at which phase?

a) Menstrual phase

b) Ovulatory

c) Post ovulatory

d) Pre follicular

Correct Answer - B
Ans. B. Ovulatory
Spinnbarkeit test (Thread test or Fern test)

- A sPecimen of cervical mucus when seen under low power microscope, shows a characteristic fern formation.
- Done to see the estrogenic activity in ovulatory phase of menstrual cycle.

1362. Rarest presentation is?

a) Cephalic

b) Breech

c) Shoulder

d) Vertex

Correct Answer - C
Ans. C. Shoulder

1363. Fertile period of female is measured by ?

a) LH

b) FSH

c) Estrogen

d) Oxytocin

Correct Answer - A
Ans, A. LH
"LH surge from the anterior pituitary gland occurs 24 hours prior to ovulation. Radioimmunoassays of the morning sample of urine & blood gives results in 3 hours. Not only does the LH surge help in predicting ovulation, but the approximate time of ovulation can be gauged & coitus around this time can improve the chances of conception."

1364. External version is done after?

a) 34 weeks

b) 36 weeks

c) 38 weeks

d) 40 weeks

Correct Answer - B
Ans. B. 36 weeks
The maneuver is carried out after 36 weeks in labour-delivery complex."

1365. Least common presentation of twins ?

a) Both vertex

b) Both breech

c) Both transverse

d) First vertex and 2nd transverse

Correct Answer - C

Ans. C.Both transverse

Lie - Presentation in twin pregnancy:

- The most common lie in the fetuses is longitudinal (90%).

The combination of presentation of fetuses are:

- Both vertex (50%)
- First breech second vertex (10%)
- First vertex and second transverse (rare)
- First yertex and second breech (30o/o)
- Both breech (10%)
- Both transverse (rarest).

1366.

Presenting part in transverse lie ?

a) Shoulder

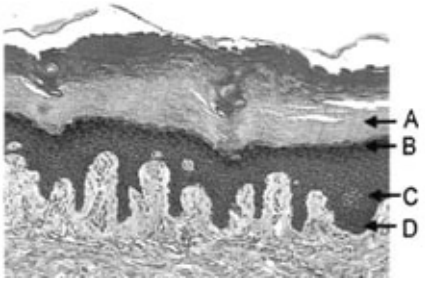
b) Face

c) Vertex

d) Brow

Correct Answer - A
Ans. A. Shoulder
'When the long axis of the fetus lies perpendicular o the maternal spine or centralised uterine axis, it is called transverse lie.
But more commonly, fetal axis lies oblique to the maternal spine & is then called oblique lie. In either of the conditions shoulder usually presents over the cervical opening during labour & both are collectively called shoulder presentations."

1367. Which of the following layer contains abundant desmosomes?



a) A

b) B

c) C

d) D

Correct Answer - C
Ans. C. C
Stratum spinosum or prickle cell layer contains abundant desmosomes marked with the legend 'C' in the image.
Picture shows layers of epidermis
A Stratum corneum
B Stratum granulosum
C Stratum spinosum
D Stratum basale

- "The epidermis can be divided into a number of layers from deep to superficial as follows: basal layer (stratum basale), spinous or prickle cell layer (.stratum spinosum), granular layer (stratum granulosum), clear layer (stratum lucidum) and cornified layer (stratum corneum."-
- "The prickle cell layer (stratum spinosum) consists of several layers of closely packed keratinocytes that interdigitate with each other by

means of numerous cell surface projections. The cells are anchored to each other by desmosomes that provide tensile strength and cohesion to the layer. These suprabasal cells are committed to terminal differentiation and gradually move upwards towards the cornified layer as more cells are produced in the basal layer. When skin is processed for routine light microscopy, the cells tend to shrink away from each other except where they are joined by desmosomes, which gives them their characteristic spiny appearance. Prickle cell cytoplasm contains prominent bundles of keratin filaments, (mostly K1 and KIO keratin proteins) arranged concentrically around a euchromatic nucleus, and attached to the dense plaques qt· desmosomes. The cytoplasm also contains melanosomes, either singly or aggregated within membrane-bound organelles (compound melanosomes). Langerhans cells and the occasional associated lymphocyte are the only non-keratinocytes present in the prickle cell layer. "

Layers of Epidermis

Stratum basale	• Also known as stratum germinativum° • It contains mitotically active keratinocytes containing house keeping organelles° (RER, golgi complex, mitochondria, lysosomes, ribosomes) • Give rise to superficial layer°
Stratum spinosum	• Spine like appearance° of cell margins in histological sections • These spines are abundant desmosomes°, calcium dependent cell surface modifications that promote adhesion of epidermal cells & resistance to mechanical stresses.
Stratum granulosum	• Characterized by buildup of components necessary for the process of programmed cell death & formation of superficial water impermeable barrier°. • Mostapparent structure within these cells is basophilic contain keratohyaline granules°
Stratum lucidum	• Clear layer, seen only in thick skin°
Stratum corneum	• Formed ofcornified or horny cells (largest cell of

corneum	epidermis) and have highest concentration

1368. Miliaria arises from obstruction of ?

a) Eccrine sweat glands

b) Apocrine sweat glands

c) Sebaceous glands

d) Ectopic sebaceous glands

Correct Answer - A
Ans. is 'a' i.e., Eccrine sweat glands
Milliria

- Occur as a result of either obliteration or disruption of the eccrine sweat duct.

Three forms :-

1. Miliaria crystallina- Clear, thin-walled vesicles, 1-2 mm in diameter, without an inflammatory areola, are usually symptomless and develop in crops, mainly on the trunk.
2. Miliaria rubra- erythematous papules especially in areas of friction with clothing, and in flexures, produce intense pricking sensation.
3. Miliaria profunda- This nearly always follows repeated attacks of miliaria rubra, o Complications :- Secondary infection and disturbance of heat regulation

1369. Not true about Skin tag ?

a) Associated with seborrhoeic keratosis

b) Pedunculated

c) Most common site is neck and axilla

d) Premalignant

Correct Answer - D

Ans. D. Premalignant

Skin tags (soft warts; achrochordon)

- A common benign lesion composed of loose fibrous tissue and occurring mainly on the neck and major flexures as a small soft Pedunculated Protrusion.
- Very common, particularly in women at the menopause or later.
- They are frequently found together with seborrhoeic keratoses.
- Treatment: Cautery and cryotherapy

1370. Spider telengectacia false is ?

a) More common in males

b) Can be caused by trauma

c) Light therapy for treatment

d) May be associated with liver disease

Correct Answer - A

Ans. A. More common in males

Spider telangiectasia (arterial spider, spider nevus, nevus aranus)

- Seen in 2/3rd of pregnant females and usually disappears after delivery.
- Estrogen is said to be involved in pathogenesis.
- When multiple, liver disease should be ruled out.
- Central radiating body with radiating vessels gives a look of spider.
- Lesion usually over upper half of the body.
- Treatment by diathermy and excision.

1371. Which of the following is untrue regarding piebaldism?

a) autosomal dominant condition

b) amelanotic skin associated with a white forelock

c) Islands of normal or hypermelanotic skin

d) Usually improves with age

Correct Answer - D

Ans. D. Usually improves with age

Piebaldism

- Piebaldism is a rare autosomal dominant condition characterized by stable areas of vitiligo-like amelanotic skin associated with a white forelock.
- Present at birth and usually remain unchanged throughout life.
- Most common is a frontal median or paramedian patch, associated with a mesh of white hair (white Forelock).
- Often, white patches occur on the upper chest, abdomen and limbs, bilaterally but not necessarily symmetrically
- The hands and feet, as well as the back, remain normally pigmented Islands of normal or hypermelanotic skin occur in the white areas, or less often on normal skin.

1372. **All are features of atopic dermatitis, except:**

a) Dennie -Morgan fold

b) Hertoghe’s sign

c) Darier’s Sign

d) Hyperlinearity of palms

Correct Answer - C

It is seen in urticaria pigmentosa.

1373. Which of the following is not a NEVUS of melanocyte?

a) Mongolian spot

b) Nevus of Ito

c) Nevus of ota

d) Becker nevus

Correct Answer - D

Ans. D. Becker nevus

Becker nevus is appendageal nevi where as other three are melanocyitc nevi.

Melanocytic nevi are :-

- Dysplastic nevus
- Blue nevus
- Nevus of ito & nevus of ota
- Spitz nevus
- Giant pigmented nevus
- Mongolian spot
- Intramucosal neyus

1374. Koebner phenomenon seen in ?

a) Psoriasis

b) Lichen planus

c) Warts

d) All the above

Correct Answer - D
Ans. is 'd' i.e., All the above

1375. Ichy purple papule followed by hayperpigmentation on resolution, is seen in?

a) Addison's disease

b) DM

c) Hypothyroidism

d) Lichen planus

Correct Answer - D
Ans. D. Lichen planus
LP is characterized by shiny, violaceous, flat-topped polygonal papules which retain the skin lines.
White lines, known as Wickham's striae, may traverse the surface of the papules.
Linear lesions often appear along scratch marks or in scars (Koebner phenomenon).
In most cases, the papules eventually flatten after a 6 months to 2 yrs, often to be replaced by an area of hyperpigmentation.

1376. **Pemphigus vulgaris is characterized by all, except:**

a) Positive Nikolsky's sign

b) Oral erosions

c) Subepidermal bulla

d) Tzanck smear showing acantholytic cells

Correct Answer - C
Pemphigus vulgaris is an intraepidermal blistering disease.

1377. Loss of Intercellular cohesion between keratinocytes is called as ?

a) Acanthosis

b) Acantholysis

c) Keratinolysis

d) Spongiosis

Correct Answer - B

Ans. B. Acantholysis

- Separation of epidermal keratinocytes due to loss of intercellular bridge is referred to as acantholysis.
- Acantholysis is seen in the epidermis (especially in basal layer).

1378. Tzank cell is ?

a) Keratinocyte

b) Fibrobalst

c) Neutrophil

d) Lymphocyte

Correct Answer - A
Ans.A. Keratinocyte
Tzank cells are acanthoylytic cells i.e. large rounded keratinocytes with srelatively large nucleus with condensed or hazy cytoplasm.

1379. True about lepromatous leprosy ?

a) Only 3 cutaneous lesions

b) Lepromin test highly positive

c) Thickened nerve roots

d) ENL in > 50% cases

Correct Answer - C
Ans. C. Thickened nerve roots
Nerve involvement in lepromatous leprosy causes thickening of nerve.
Lepromin test is negative.
There are more than 10 macules / patches/plaques.

1380. Dermatophytosis is not ?

a) Scaly

b) Itchy

c) Superficial

d) Subdermal

Correct Answer - D
Ans. D. Subdermal

1381. Oculoorogenital ulcers are a feature of ?

a) Behcet disease

b) lichen planus

c) SLE

d) Psoriasis

Correct Answer - A
Ans. A. Behcet disease
Behcet's disease is a multisystem disease that is defined by the presence of oral aphthosis with at least two of the following: genital aphthae synovitis, posterior uveitis, cutaneous pustular vasculitis or meningoencephalitis, in the absence of IBD or autoimmune Diseases.

1382. All of the following are feature of dermatomyositis, Except:

a) Salmon Patch

b) Gottron's patch

c) Mechanic finger

d) Periungual telengiectasias

Correct Answer - A
Answer is A (Salmon Patch):
Salmon patch is not a feature of dermatomyositis.
Cutaneous features of dermatomvositis

Cutaneous feature	**Description**
Heliotrope Rash°	Periocular or facial erythema and edema with pink/purple /blue (heliotrope) hue *(blue purple discoloration on upper eve lids with edema)*
Gottren's Papules^Q (Gottren's sign)	Violaceous papules over the knuckles *Erythema of the knuckles with a raised violaceous scaly eruption*
`V' sign	*Ervthematous rash over other body surfaces such as anterior chest (often in a V form)*
Shawl sign	*Erythematous rash over other body surfaces including the upper trunk, neck, back & shoulders (shawl pattern)*
Periungual Telengiectasiase	*Dilated capillar^y loops at the base offingernails*
Mechanic's	*Irregular, thickened, distorted cuticles, with rough*

hands[Q]	*and cracked areas over the lateral and palmar areas offingers with irregular dirty horizontal lines resembling mechanic 's hand.*
Calcinosis Cutis[e]	*Presence of hard calcium deposits in the skin*

1383. Hereditary angioneurotic edema is due to ?

a) Deficiency of C1 inhibitor

b) Deficiency of NADPH oxidase

c) Deficiency of MPO

d) Deficiency of properdin

Correct Answer - A

Ans. is 'a' i.e., Deficiency of C_1 inhibitor

- Hereditary angioneurotic edema is due to C_1inhibitor (C_i esterase inhibitor) deficiency.

1384. Phrynoderma is due to ...deficiency-

a) Vitamin D

b) Niacin

c) Vitamin A

d) Essential fatty acid

Correct Answer - D
Ans. is 'd' i.e., Essential fatty acid
In vitamin 'A' deficiency there is toad like skin also known as phrynoderma.
o But this is due to associated deficiency of essential fatty acids.

1385. Maximum cumulative dose of isotretinoin shouldn't exceed for acne treatment ?

a) 30-60 mg/kg

b) 60-90 mg/kg

c) 90-120 mg/kg

d) 120-150 mg/kg

Correct Answer - D
Ans., D. 120-150 mg/kg
Isotretinoin is recommended for severe nodulocystic acne and also for the patients with milder disease who don't respond to conventional treatment.
Treatment regimens usually begin at 0.5-1.0mg/kg/day for the duration of between 16 and 20 weeks.
Cumulative dose amount to a total of at least 12O mg/kg, but there is no added benefit when 150 mg/kg is exceeded.

1386. Exanthema subitum is caused by ?

a) HHV

b) HPV

c) HIV

d) HCV

Correct Answer - A
Ans. A. HHV
HHV-6 virus causes roseola infantum (exanthem subitum), the most common exanthematic fever in children under the age of2 years, with a peak incidence between 6 and 9 months.

1387. Cocaine was first used as local anaesthetic by ?

a) Carl kollar

b) Holmer wells

c) Morton

d) None

Correct Answer - A
Ans. A. Carl kollar
Cocaine was the first local anesthetic used by Carl Koller. It was used for anaesthetizing cornea.

1388. Levels of ether anesthesia were demonstrated by whom?

a) Morton

b) Guedel

c) Thompson

d) None

Correct Answer - B
Ans. B. Guedel
Guedel described four stages of ether anesthesia known as Guedel stages.

1389. Infant circuit for anaesthesia ?

a) Bains circuit

b) Magill circuit

c) Ayres t piece

d) Water's circuit

Correct Answer - C
Ans. C. Ayres t piece

1390. Ayre's T-piece is which type of circuit

a) Type A

b) Type B

c) Type E

d) Type D

Correct Answer - C
Ans. C. Type E

1391. Most reliable indicator to prevent oesophageal intubation ?

a) Oxygen saturation on pulse oximeter

b) Measurement of CO_2 in exhaled air (Etco2)

c) Direct visualization of passing tube beneath vocal cords

d) Auscultation over chest

Correct Answer - B

Ans, B. Measurement of CO_2 in exhaled air (Etco2)

1392. All are features of difficult airway except ?

a) Miller's sign

b) Micrognathia with macroglossia

c) TMJ ankylosis

d) Increased thyromental distance

Correct Answer - D
Ans. D. Increased thyromental distance
Decreased thyromental distance predicts difficult airway (not increased TM distance).

1393. Ratio of 0_2: N_20 in Entonox is ?

a) 50 : 50

b) 60 : 40

c) 40 : 60

d) 25 : 75

Correct Answer - A
Ans. A. 50 : 50
Entonox contain equal amount (50/50) of N2O and O2.

1394. Which is the critical temperature of N_20 ?

a) -118°C

b) -88°C

c) -26°C

d) -36.5°C

Correct Answer - D
Ans. D. -36.5°C
Critical temperature of N2O - 36.5
Critical pressure of N2O - 214.7 atm

1395. Which anaesthetic agent is neither metabolised by liver nor by kidney ?

a) Atracurium

b) Vecuronium

c) Pancuronium

d) Rocuronium

Correct Answer - A
Ans. A. Atracurium

1396. Dibucain number refers to ?

a) Ach cholinestrase activity derangement

b) Potency of muscle relaxants

c) Potency of general anaesthetics

d) None

Correct Answer - A
Ans. is 'a' i.e., Ach chlinestrase activity derangement

- Dibucain number : Dibucain (a local anaesthetic) inhibits 80% of normal pseudocholinesterase and 20% of atypical (non-functional) pseudocholinesterase. Therefore normal dibucain number is 70-80%. Dibucain number is used to measure the activity of atypical pseudocholinesterase.

1397. Stages of anesthesia were established by

a) Ether

b) N20

c) Halothane

d) Chloroform

Correct Answer - A
A i.e. Ether

1398. Fast induction and recovery is seen in?

a) Methoxyflurane

b) Ether

c) Halothane

d) N2O

Correct Answer - D
Ans. D. N2O
Speed of onset & recovery in decreasing order (Increasing order of B : G partition coefficient and blood solubility).

1399. MAC of desflurane is ?

a) 1.15

b) 2

c) 4

d) 6

Correct Answer - D
Ans. D. 6

1400. Which can replace N_20 as 0_2 carrier?

a) Argon

b) Xenon

c) Helium

d) None

Correct Answer - C
Ans. C. Helium
Helium can be used to replace nitrogen, as the carrier gas for oxygen (Helium) to reduce the work of breathing.

1401. **All of the following are correct about ketamine, EXCEPT:**

a) It functionally "dissociates" the thalamus

b) It increases arterial blood pressure

c) It is a potent bronchoconstrictor

d) It inhibits polysynaptic reflexes in the spinal cord

Correct Answer - C

Ketamine functionally "dissociates" the thalamus (which relays sensory impulses from the reticular activating system to the cerebral cortex) from the limbic cortex (which is involved with the awareness of sensation).

Ketamine increases arterial blood pressure, heart rate, and cardiac output.

Racemic ketamine is a potent bronchodilator, making it a good induction agent for asthmatic patients.

It inhibits polysynaptic reflexes in the spinal cord as well as excitatory neurotransmitter effects in selected areas of the brain.

Ref: Butterworth IV J.F., Butterworth IV J.F., Mackey D.C., Wasnick J.D., Mackey D.C., Wasnick J.D. (2013). Chapter 9. Intravenous Anesthetics. In J.F. Butterworth IV, J.F. Butterworth IV, D.C. Mackey, J.D. Wasnick, D.C. Mackey, J.D. Wasnick (Eds), *Morgan & Mikhail's Clinical Anesthesiology*, 5e.

1402. All are true about nitrous oxide except ?

a) Laughing gas

b) Causes megaloblastic anemia

c) Causes diffusion hypoxia

d) Good muscle relaxant

Correct Answer - D

Ans. is 'd' i.e., Good muscle relaxant

Nitrous oxide N,O

- It is also called laughing gas.
- It has good analgesic but poor muscle relaxant activity.
- Second gas effect and diffusion hypoxia occur with N_20 only.
- N_20 is the only anaesthetic reported to produce hematologic toxicity and neurotoxicity with long term administration.
- Both toxicities are the result of the interaction of N_20 with vit B12.

1403. Inducing agent of choice in shock ?

a) Isoflurane

b) Desflurane

c) Ketamine

d) Thiopentone

Correct Answer - C
Ans. is 'c' i.e., Ketamine

- Inducing agent of choice in Asthma & COPD → Ketamine.
- Inhalational agent of choice in Asthma & COPD → Halothane.

1404. Benefit of ketamine ?

a) Causes decrease in BP

b) Good analgesic action

c) Decrease ICT

d) Decrease IOT

Correct Answer - B
Ans. B. Good analgesic action
Ketamine is different from most other anaesthetic induction agents in that it has significant analgesic action

1405. Which of the following is a sympathomimetic ?

a) Propofol

b) Etomidate

c) Ketamine

d) N2O

Correct Answer - C
Ans. C. Ketamine
Ketamine has an indirect sympathomimetic action.

1406. Following is true about halothane except?

a) Volatile liquid with sweet odour

b) Sensitises heart to adrenaline

c) Constricts bronchii

d) Causes malignant hyperthermia

Correct Answer - C

Ans. is 'c' i.e., Constricts bronchii

Halothane

- It is a volatile liquid with *sweet odour, nonirritating and noninflammable.*
- It is a *potent anaesthetic with poor analgesic and muscle relaxant properties.*
- *Halothane causes direct depression of myocardial contractility by reducing intracellular Ca.*
- It causes fall in BP and CO.
- Heart rate decreases due to vagal stimulation.
- *It tends to sensitize the heart to arrhythmogenic action of adrenaline* → contraindicated in pheochromocytoma.
- It causes greater depression of respiration and ventilation perfusion mismatch.
- It dilates the bronchi → inhalation agent of choice in asthmatics (intravaneous anaesthetic of choice in asthmatics is ketamine).
- It is a *hepatotoxic drug* and can also cause *malignant hyperthermia* (Succinylcholine accentuate it).
- Recovery is smooth and reasonably quick.
- It causes *postanaesthetic shivering and chills.*
- It inhibits intestinal and uterine contractions → agent of choice for

assisting external or internal version during late pregnancy.

- Because its uterine relaxant action it is contraindicated during labour.
- It is particularly suitable for induction and maintenance in children and as maintenance anaesthetic in adults.

1407. All of the following cause myocardial depression except:

a) Halothane

b) Etomidate

c) Thiopentone

d) Ketamine

Correct Answer - B
B i.e. Etomidate
- Etomidate causes *adreno - cortical suppressionQ* by *inhibiting enzymes 11/3 hydroxylase (mainly) & 17 a hydroxylase involved in cortisol and aldosterone (mineralocorticoid) productionQ.* Vit C supplimentation restores cortisol level.
- Etomidate and midazolam *provide cardiovascular stabilityQ.* But *etomidate is most cardiostable agentQ* that causes the least hemodynamic disturbance of any of the *intravenous anesthetic agents. So it is intravenous anesthetic agent of choice for patients with cardiac disease and aneurysm surgeryQ.*
- Direct myocardial depression is caused by *halothane (severe), nitrous oxide (moderate), iso/sevo/des-flurane (mild), thiopental (marked), propofol (dose dependent) and ketamineQ* (but this is masked by cardiotonic sympathetic stimulatory action). *Etomidate > midazolem are most cardiostable agentsQ.*

1408. Midazolam causes all except:

a) Anterograde amnesia

b) Retrograde amnesia

c) Causes tachyphylaxis during high dose infusions

d) Decreased cardiovascular effects as compared to propofol

Correct Answer - B
Ans. b. Retrograde amnesia
At the time of peak concentration in plasma, hypnotic doses of benzodiazepines (midazolam) can be expected to cause varying degrees of lightheadedness, lassitude, increased reaction time, motor incoordination, impairment of mental and motor functions, confusion, and anterograde amnesia."
Midazolam:

- It causes anterograde amnesia[Q]
- Tolerance and tachyphylaxis may occur, particularly with longer-term infusions[Q](Shafer A. Complications of sedation with midazolam in the intensive care unit and a comparison with other sedative regimens. Crit Care Med. 1998;26(5): 947-56)
- Benzodiazepine withdrawal syndrome has also been associated with high dose/ long-term midazolam infusions[Q]
- Compared with propofol infusions, midazolam infusions have been associated with a decreased occurrence of hypotension° but a more variable time course for recovery of function after the cessation of the infusion.

1409. Which cant be given by Epidural anaesthesia ?

a) Morphine

b) Remifentanil

c) Alfentanil

d) Fentanyl

Correct Answer - B
Ans. B. Remifentanil
Opioids used for epidural analgesia are morphine, Fentanyl, Tramadol, Buprenorphine, alfentanil, sulfentanil, pentazocine. Ramifentanil contains glycine which can cause motor weakness --à hence not suitable for epidural analgesia.

1410. The drug for OPD analgesia is -

a) Morphine

b) Pethidine

c) Fentanyl

d) Alfentanil

Correct Answer - D
Ans. is 'd' i.e., Alfentanil

Drugs useful for day care surgery

- o Propofol
- o Midazolam
- o Alfantanil
- o Sevoflurane, desflurane & isoflurane
- o Mivacurium

1411. Addition of epinephrine to lignocaine?

a) Increaseses distribution of LA

b) Decreases absorption of LA

c) Decreases duration of LA

d) Increases metabolism of LA

Correct Answer - B
Ans. B. Decreases absorption of LA
Vasoconstrictors are used along with LA which prolongs duration of action as rate of absorption is decreased due to vasoconstriction. For the same reason, metabolism of LA is reduced and toxicity is decreased as there is lesser absorption of LA,

1412. Maximum concentration for epidural block ?

a) Bupivacaine

b) Lidocaine

c) Ropivacaine

d) Chlorprocaine

Correct Answer - D
Ans, D. Chlorprocaine

1413. Vasoconstricator L.A. is ?

a) Cocaine

b) Procaine

c) Lidocaine

d) Chlorprocaine

Correct Answer - A
Ans. A. Cocaine
All LAs are vasodilator except cocaine. Cocaine causes vasoconstriction'
"Ropivacaine and bupivacaine also cause vasoconstriction"'

1414. All are contraindications of spinal anaesthesia Except?

a) Bleeding disorder

b) Raised intracranial tension

c) Hypertension

d) Infection at injection site

Correct Answer - C
Ans, C. Hypertension

1415. For prevention of headache during spinal anaesthesia?

a) Diluted solution of local anaesthetic should be used

b) Preloading with crystalloids

c) Finer I.P. needle should be used

d) Head end should be elevated

Correct Answer - C
Ans, C. Finer I.P. needle should be used
As single most imPortant predisposing factor is large bore needle use of fine needle prevents PDPH.

1416. In newborn, chest compression should be started if heart rate is ?

a) < 120/min

b) < 100/min

c) < 80/min

d) < 60/min

Correct Answer - D
Ans, D. < 60/min
Compression for new born should be started if HR < 60/min'

1417. Nonionic dye is

a) Ioxaglate

b) Iohexol

c) Iothalamate

d) None

Correct Answer - B

Answer- B. Iohexol

- Iohexol is a nonionic monomer contrast agent.
- The non-iodine radicals at positions 1, 3 and 5 (including the ionic carboxyl radical) were replaced by long amino hydrocarbons that provide adequate solubility without ionizing.
- Examples of this type of compound are iopromide, iohexol, iopamidol, ioversol, iopentol, iobitridol, and iomeprol.

1418. HU is measure of

a) CT

b) MRI

c) PET

d) USG

Correct Answer - A
Answer- A. CT
Hounsfield's contribution is memorialized in the Hounsfield scale, which is used to measure the x-ray attenuation in CT scanning. Water is arbitrarily assigned a value of 0 Hounsfield units (HU).
[Ref Essential radiology p. 86]

1419. Which of the following techniques uses piezoelectric crystals?

a) Ultrasonography

b) NMR imaging

c) X-ray diffraction

d) Xeroradiography

Correct Answer - A
Ans. Ultrasonography

- Ultrasonography is based on *piezoelectric effect.*
- **MRI** is based on *gyeromagnetic property of proton (IP).*

1420. Which looks same on Ti & T2 on MRI

a) Gall bladder

b) Fat

c) Kidney

d) CSF

Correct Answer - B
Answer- B. Fat
Fat (adipose tissue) has high signal intensity on both T1 & T2 images.
Other three options have low signal intesity on T1 and high signal intensity on T2 images.

1421. **The scan with highest sensitivity to detect adrenal metastasis due to bronchogenic carcinoma is:**

a) Contrast Enhanced CT abdomen with Adrenal protocol

b) PET scan

c) MRI scan

d) Radionuclide scan

Correct Answer - B

Scans to differentiate adrenal adenoma from adrenal metastasis are:

- CECT -
- Chemical shift MRI
- FDG-PET

PETscan has almost 100 % sensitivity for detecting adrenal metastasis, so a negative study excludes the possibility of adrenal mets. But adenomas can give false positive test.

Ref: Fundamentals of Diagnostic Radiology, Edition - 4, Page - 427.

1422. Hypertranslucent chest X-ray is seen in all except

a) Mcleod syndrome

b) Emphysema

c) Pneumonectomy

d) Poland syndrome

Correct Answer - C

Answer- C. Pneumonectomy

Causes of opaque hemithorax

- Technical : - Rotation, Scoliosis.
- Pleural : - Pleural effusion, Pleural thickening, Mesothelioma.
- Surgical : - Pneumonectomy, Thoracoplasty.
- Congenital : - Pulmonary agenesis.
- Mediastinal : - Gross cardiomegaly, tumors.
- Pulmonary : - Collapse, Consolidation, fibrosis, Foreign body.
- Diaphragmatic hernia

1423. What is not seen on chest X-ray in pulmonary artery hypertension

a) Enlargement of central arteries

b) Peripheral prunning

c) Narrowing of central arteries

d) None

Correct Answer - C

Answer- C. Narrowing of central arteries

Characteristic radiological feature of pulmonary hypertension is enlargement of central arteries with peripheral prunning.

Increased pulmonary artery pressure and pulmonary vascular resistance characterize pulmonary hypertension. PAH is defined as systolic pressure in the pulmonary artery exceeding 30 mm Hg.

1424. Which chamber enlargement shows a double right heart border with a wide subcarinal angle?

a) Left atrium

b) Left ventricle

c) Right atrium

d) Right ventricle

Correct Answer - A
Answer- A- Left atrium
Radiological signs of left atrial enlargement:

- A 'double' right heart border
- Elevation of the left main bronchus
- Splaying of the carina
- Enlargement of the left atrial appendage
- The prominence of the portion of the left heart border at the level of the left main bronchus

1425. Corkscrew esophagus is seen in which of the following conditions ?

a) Carcinoma esophagus

b) Scleroderma

c) Achalasia cardia

d) Diffuse esophagus spasm

Correct Answer - D

Ans. is d i.e., Diffuse Esophageal spasm

- Radiological appearances of **diffuse esophageal spasm** have been described as:
  curling *esophagus*
  Corkscrew esophagus or
  - pseudodiverticulosis
- Diffuse esophageal spasm is a *motor disorder* of esophagus characterized by *repetitive simultaneous non-peristaltic contractions.*
- Symptoms are *substernal chest pain* and/or *dysphagia*
- Diagnosed by *manometry*
- *Also know*
- Nutcracker esophagus
  also known as 'supersqueezer' esophagus
  - it is characterized by *extremely high-amplitude peristaltic contraction*
  - Symptoms are *pain* and *dysphagia*
  Diagnosed by *manometry study* which shows peristaltic esophageal contractions with peak amplitudes greater than two standard deviations above the normal values.

1426. Rat tail appearance in contrast radiography is seen in?

a) Achalasia cardia

b) Carcinoma esophagus

c) Cork screw esophagus

d) Diffuse esophageal spasms

Correct Answer - B
Carcinoma esophagus REF: sabiston's 18' edition chapter 41 See table in the previous question
"Rat-tail" appearance on barium study is seen in carcinoma esophagus.

1427. Colon is identified on X-ray

a) Haustra

b) Valvulae conniventes

c) String of beads sign

d) More number of loops

Correct Answer - A
Answer- A. Haustra
Haustra (incomplete band across the bowel gas shadow) are seen in colon.

1428. Double track sign is seen in

a) Duodenal atresia

b) CHPS

c) Gastric ulcer

d) Achalasia

Correct Answer - B
Answer- B. CHPS
Double/triple track sign is seen in congenital hypertrophic pyloric stenosis.

1429. Investigation of choice for studying Renal Cortical mass

a) 99 Tc DTPA

b) 53 Cr Study

c) 99 Tc DMSA

d) 99 Tc Pyrophosphate

Correct Answer - C

C i.e. 99 - Tc - DMSA

DTPA (Renogram)	DMSA (Isotope Scanning)
- DTPA is freely filtered at glomerulus with no tubular reabsorption or excretion (i.e. GFR = Excretory function)	- Tc.99 DMSA is used for *renal morphological (anatomic) imagine* - This compound gets fixed in renal tubules & images
- DTPA is useful for *evaluating perfusion and excretory function of each kidneyQ*	may be obtained after 1-2 hours of injection. Lesions such as *tumors & benign lesions as cysts show filling defectQ*
- Indications:	
1. Measurement of *relative renal functionQ in each kidney.*	- Used to assess *cortical function of KidneyQ* and *detect renal scarringQ.*
2. *Urinary tract obstructionQ*	
3. Diagnosis of *Renovascular cause of hypertensionQ*	

4. Investigation of *Renal transplantQ*

1430. Rim sign in IVP is seen in

a) Polycystic Kidney

b) Hydronephrosis

c) Chronic pyelonephritis

d) Hypernephroma

Correct Answer - B
B i.e. Hydronephrosis
Rim Sign in Nephrogram-
1. Severe hydronephrosis of the kidneys
2. Acute complete arterial obstruction

1431. Investigation of choice for multiple sclerosis

a) CT

b) MRI

c) USG

d) PET

Correct Answer - B
Answer- B. MRI
MRI is the investigation of choice for demyelinating disorder, e.g. multiple sclerosis.

1432. Investigation of choice for intramedullary SOL is -

a) MRI

b) USG

c) CT

d) X-ray

Correct Answer - A
Answer- A. MRI
Investigation of choice for intramedullary space occupy lesion is MRI.

1433. Investigation of choice for screening of proximal internal carotid artery stenosis is :

a) Doppler flow USG

b) CT substraction angiography

c) MRI

d) Angiography (DSA)

Correct Answer - A

Answer is A (Doppler flow USG):

'Stenosis at the origin of the internal carotid Artery can be identified and quantified reliably by ultrasonography that combines B mode ultrasound image with a Doppler ultrasound assessment of flow velocity.'

1434. "Sunray appearance" on X-rays is suggestive of:

a) **A** Chondrosarcoma

b) A metastatic tumour in the bone

c) An Osteogenic sarcoma

d) An Ewing's sarcoma

Correct Answer - C
C i.e. Osteogenic Sarcoma

- Sunray appearance is classically seen in *osteosarcoma.* It may also occur in *metastases, Ewings sarcoma,* Haemang oma, Meningioma and tuberculosis.

1435. Bone within bone appearance is seen in?

a) CML

b) Osteoporosis

c) Osteopetrosis

d) Bone infarct

Correct Answer - C
C i.e. Osteopetrosis
In osteopetrosis, there is reduced osteoclastic bone resorption resulting in diffuse symmetrical skeleton sclerosis. Also k/a marble bone disease d/t its stone like quality of bones; however the bones are abnormally brittle & fracture like a piece of chalk. It can present radiologically as?
Sclerosis of all bones *more prominent at base of skullQ.*
Sclerosis of vertebral end plate 1/t characteristic *sandwitch or broad stripped (rugby jersey spine) Q Bone in bone appearanceQ* d/t sclerotic foci within the bone.

1436. White line of Frenkel is seen in:
September 2008

a) Osteoporosis

b) Osteomalacia

c) Scurvy

d) Beri-Beri

Correct Answer - C
Ans. C: Scurvy
Clinical symptoms and signs of infantile scurvy, in order of frequency are irritability, tenderness and weakness of lower extremities, a scorbutic rosary of the legs, bleeding of the gums (usually where teeth have erupted), and fever.
Radiographic findings of scurvy:

- Dense metaphyseal line-This is due to an intensification of the zone of preparatory calcification, resulting from matrix formation failing, is has been referred to as the white line of Frenkel, but is non-specific, as it is also seen in healing rickets, and lead or phosphorus poisoning.
- Ground glass osteoporosis: This appears at the end of the shaft with blurring or disappearance of trabecular markings.
- Halo ossification centre: Also called the Wimberger's ring, it is the same effect that produces the white line of Frenkel, affecting the epiphyseal ossification center.
- Corner sign-Seen due to subepiphyseal infarction, or separation of the epiphysis from the metaphysis.
- Lateral spurs-These metaphyseal spurs project at right angles to the axis of the shaft, they may be seen due to mushrooming of epiphysis on the metaphysis, or may represent earliest calcification of

periosteum elevated by a subperiosteal hemorrhage.

- Subperiosteal hematomas-These occur at the end of long bones, seen after about 2 weeks of onset of clinical symptoms; it is not the periosteal hemorrhage that calcifies, but the elevated periosteum, secondary to resumption of bone formation.
- Metaphyseal fractures-Subperiosteal comminuted fractures at the end of long bones, extending only partially through the width of the bone.
- Atrophy scurvy line-A radiolucent zone on the shaft side of Frenkel's white line, it has been referred to as the Trummerfeld Zone.

1437. Von Rosen's view is for

a) CDH

b) Perthe's disease

c) CTEV

d) None

Correct Answer - A
Answer- A. CDH
In Von Rosen's view is used in DDH/CDH.

1438. Popcorn calcification is seen in:

a) Pulmonary hamartoma

b) Fungal infection

c) Metastasis

d) Tuberculosis

Correct Answer - A
Ans. Pulmonary hamartoma
Popcorn calcification
o Popcorn calcification is a cluster of sharply defined, irregularly lobulated, calcification, usually in a pulmonary nodule.
o *Popcorn calcification is characteristic of hamartoma on chest X-ray examination.*
o It may also be seen in mediastinal lymph nodes of *acute histoplasmosis.*
Egg-shell calcification
o Egg-shell calcification means peripheral rim calcification of lymph nodes:
o It is seen in:
N Silicosis (most common cause)
(vi) Histoplasmosis *(vii)* Tuberculosis
(ii) Coal worker pneumoconiosis *(v)* Sarcoidosis (viii) Coccidiodomycosis
(iii) Lymphoma following radiotherapy *(vi)* Progressive massive fibrosis

1439. Nuchal translucency is used in

a) Head scan

b) MRI neck

c) ANC USG

d) Anthropometry

Correct Answer - C
Answer- C. ANC USG
Nuchal translucency is used for screening of down syndrome in antenatal USG.

1440. Half-life of Iodine 131 is

a) 8 hours

b) 8 days

c) 8 weeks

d) 8 months

Correct Answer - B
Answer- B. 8 days
Iodine - 131 Half life 8 days
Iodine - 123 -3 Half life 13 hours
Iodine - 132 Half life 2.3 hours

1441. Calcification of Intervertebral Disc is seen in

a) Gout

b) Rheumatoid

c) Alkaptonuria

d) Psoriasis

Correct Answer - C

C i.e. Alkaptonuria

Features	Disease
Fish Mouth Vertebrae	*- Sickel Cell AnemiaQ* *HomocystinuriaQ*
Cod Fish Vertebra (Biconcave vertebra)	- Osteomalacia, Osteoporosis, Hyperparathyroid
Rugger jersey spine (sclerosis of upper & lower spine borders)	*- CRF induced osteomalaciaQ* - Osteopterosis (marbel bone disease)
Calcification of Intervertebral disc	*- Alkaptonuria (m.c.)*
Picture Frame vertebrae	- Paget's disease
Vertebrae plana	*- Eosinophilic granulomaQ*

1442. The maximum DALY loss is for the following disease -

a) Schizophrenia

b) Unipolar depression

c) Bipolar depression

d) Mania

Correct Answer - B
Ans. B. Unipolar depression
Amongst the psychiatric disorders maximum DALY loss is caused by major depression.

1443. Etheromanias refer to ?

a) Acute psychosis post ether anaesthesia

b) Ether addiction

c) Excessive ether use drug anaesthesia

d) None

Correct Answer - B
Ans, B. Ether addiction
Ether addiction or etheromania is the addiction to inhalation or drinking of diethyl ether.

1444. The term "Dementia precox" was coined by ?

a) Freud

b) Bleuler

c) Kraepelin

d) Schneider

Correct Answer - C
Ans. C. Kraepelin

1445. The term 'id' was coined by ?

a) Freud

b) Skinner

c) Wayker

d) Blueler

Correct Answer - A
Ans, A. Freud
Structural theory of mind(theid, ego and superego) was given by sigmund freud.

1446. Subcortical dementia is seen in all except ?

a) Parkinsonism

b) Alzheimer's disease

c) Wilson's disease

d) Huntingtons chorea

Correct Answer - B

Ans.B. Alzheimer's disease

Subcortical dementia is seen in parkinsonism, Huntington's disease, wilson's disease, progressive supranuclear palsy, idiopathic basal ganglion calcification (Fahr's disease), thalamic lesions, multiple sclerosis, HIV associated dementia and multisYstem atroPhY. Alzheimer's disease causes cortical dementia.

1447. Formication is seen with ?

a) Acute amphetamine intoxication

b) Chronic use of amhetamine

c) Alcohol withdrawal

d) Cannabis poisoning

Correct Answer - B
Ans. B. Chronic use of amhetamine
Magnan’s syndrome (also called formication) is seen in chronic cocaine and chronic amphetamine abuse.

1448. Hangover following alcohol consumption can be treated with ?

a) Pyridoxine

b) Thiamine

c) Riboflavin

d) Niacin

Correct Answer - B
ANs. B. Thiamine
Thiamine helps prevent the buildup of glutarate in the brain, which may be associated with part of the headache associated with hangover.

1449. Most commonly abused opioid -

a) Morphine

b) Diacetylmorphine

c) Oxycodine

d) Bupremorphine

Correct Answer - B
Ans, B. Diacetylmorphine
Diacetylmorphine (heroin) is the most commonly abused opioid.

1450. Hallucinations are produced by?

a) Amphetamine

b) Morphine

c) Paraxetine

d) Chlorpromazine

Correct Answer - A
Ans, A. Amphetamine
Amphetamine psychosis mimic paranoid schizophrenia. There may be deleusions and hallucinations.

1451. Anxiety is ?

a) Neurosis

b) Psychosis

c) Personality disorder

d) None

Correct Answer - A
Ans., A. Neurosis
Important neurotic disorders are Anxiety disorders (Panic), Phobia (Phobic anxiety disorder), obsessive compulsive Disorder & Dissociative conversion disorder.

1452. Negative symptom of schizophrenia ?

a) Hallucination

b) Delusion

c) Ambivalance

d) Motor hyperactivity

Correct Answer - C

Ans. is 'c' i.e., Ambivalance

- **Symptoms of schizophrenia can be divided into :?**

1. Positive symptoms :- Positive symptoms are psychotic symptoms not seen in normal individuals but are "actively expressed" in patient, i.e., hallucinations, delusions and bizarre motor acts. Positive symptoms are more common in acute schizophrenia. These respond well to typical antipsychotics.
2. Negative symptoms :- Negative symptoms are normally expected behaviours, emotions (feeling), thoughts and drives that the person with schizophrenia fail to exhibit, i.e., deficit state (diminution or loss) of normal function. The prominent negative symptons are flattening or blunting of affect, anhedonia, ambivalence (avolition) asociality (social withdrawal), alogia, apathy, paucity of thought and poverity of speech. Negative symptoms are more common in chronic schizophrenia. Negative symptoms do not respond well to typical antipsychotics Therefore patient on typical antipsychotics may show improvement of positive symptoms and persistent of negative symptoms.

- **More recently a third category has been proposed.**

3.Disorganized symptoms :- Disorganized speech/thinking, and disorganized behavior.

1453. Type of schizophrenia with mental retardation:
NEET 13

a) Von-Gogh syndrome

b) Paranoid schizophrenia

c) Catatonic schizophrenia

d) Pfropf schizophrenia

Correct Answer - D
Ans. Pfropf schizophrenia

1454. Erotomania is seen in:
NEET 13

a) Bipolar mania

b) Unipolar mania

c) Neurosis

d) Obsessive compulsive disorder

Correct Answer - A
Ans. Bipolar mania

1455. In depressions, there is deficiency of ?

a) 5-HT

b) Acetylcholine

c) Dopamine

d) GABA

Correct Answer - A
Ans. A. 5-HT
Depression = Decrease in serotonin and norepinephrine.
Serotonin is the most imPortant neurotransmitter in depression.
Mania= Increased of norepipherine.

1456. The aminoacid derived neurotransmitter used for treating depression is ?

a) Serotonine

b) Histamine

c) acetylcholine

d) none

Correct Answer - A
Ans. A. Serotonine
The three main neurotransmitters involved in depression are dopamine, norepinephrine and serotonin (s-HT).
When brain levels of one or more neurotransmitter are low or unbalanced, depression can result. Generally, antidepressant drugs work by increasing production or decreasing the breakdown of one or more of these neurotransmitters.

1457. Suicidal tendencies are most commonly seen in:
March 2003

a) Female

b) Younger age

c) Severe depression

d) All of the above

Correct Answer - C
Ans. C i.e. Severe depression

1458. Repetitive irresesistable thought to do something

a) Phobia

b) Obsession

c) Compulsion

d) Anxiety

Correct Answer - B
Ans. is 'b' i.e., Obsession
Obsessive compulsive disorder (OCD)

- OCD is an anxiety disorder which is characterized by recurrent, unwanted thoughts (Obsessions) and repettive behaviors (compulsions).
- An obsession has following characteristic : -

1. An idea, impulse or image which intrudes into the conscious awareness repeatedly.
2. It is recognized as one's own ideas, impulse or image but is perceived as egoalien (foreign to one's personality).
3. It is recognized as irrational and absurd (insight is present **--4** Patient knows about disorder).
4. Patient tries to resist against it but is unable to do so which leads to marked distress or anxiety.

- **A compulsion has following characteristics :-**

1. It is repetitive, purposeful form of behavior is carried out because of strong feeling of compulsion to do so.
2. It usually follows an obsession.
3. ts goal is to prevent or reduce the anxiety or stress caused by obsession however it do not always succeed in doing so.
4. It is irrational or excessive and not realistic.

5. Insight is present.

- A patient with OCD may have an obsession, a compulsion or both (mostly patients have both).
- A patient with OCD realizes the irrationality of the obsession and experiences both the obsession and the compulsion as ego-dystonic (unwanted behavior).
- The person is preoccupied with details rules, list order, organisation or schedules to the extent that the major point of activity is lost.
- The person shows perfectionism that interfers with task completion (e.g., unable to complete project because his own overtly strict standard are not met).

1459. Repetitive times work doing for premonition of ?

a) Obscession

b) Compulsion

c) Anxiety

d) None

Correct Answer - B
Ans. B. Compulsion
Repetitive irresistable thoughts > Obsession.
Repetitive purposeful behavior (work doing) > compulsion.

1460. Derelation & depersonalisation seen in which type of disorder ?

a) Dissociative disorder

b) Personality disorders

c) Mania

d) None

Correct Answer - A
Ans. A. Dissociative disorder

1461. Phobia is:

a) Psychosis

b) Fear of animal

c) Anxiety

d) Neurosis

Correct Answer - D
Neurosis

1462. Persistent preoccupation with serious illness and normal body function is called ?

a) Obsession

b) Somatization

c) Hypochondriasis

d) Conversion disorder

Correct Answer - C
Ans. is 'c' i.e., Hypochondriasis
Hvpochondriasis (hypochondriacal disorder)

- The primary feature of hypochondriasis is persistent preoccupation with excessive fear of a serious (e.g., cancer) or incurable (e.g., AIDS) disease, which is based on person's own interpretation of physical symptoms or sensation, i.e., misinterpretation of physical symptoms or sensations, for example an occasional change in heart rate will lead a person with hypochondriasis to fear of heart disease. Therefore, Hypochondriasis is abnormal preoccupation about normal body function, i.e., body functioning is normal but patient thinks it as abnormal.
- The preoccupation with the presence of a feared illness persists inspite of normal medical assessment and investigations. Patient goes from one doctor to another for a consultation.
- People with hypochondriasis are able to acknowledge that their fears are unrealistic (insight is present), but this intellectual realization is not enough to reduce their anxiety.
- Two important facts differentiate hypochondriasis from somatization disorder : -

1. Patient with hypochondriasis is preoccupied with illness, on the other hand patient with somatization disorder is occupied with symptoms.
2. Hypochondriasis patient is preoccupied with one illness (usually) while patient with somatization disorder has many (at least 8 or more) symptoms.

1463. All are true regarding somatization dosorder except:

a) Maintain sick role

b) 4-Pain symptoms

c) 1-Sexual symptom

d) 1-Pseudo neurological symptom

Correct Answer - A
A i.e. Maintain sick role

1464. Schizoid personality disorder all are seen except?

a) Aloof & detached

b) Prone to fantasy

c) Suspicious

d) Introspective

Correct Answer - C
Ans. C. Suspicious
Suspiciousness is seen in paranoid personality disorder.

1465. Narcolepsy is due to abnormality in ?

a) Hypothalamus

b) Neocortex

c) Cerebellum

d) Medulla oblongata

Correct Answer - A
Ans. A. Hypothalamus
Narcolepsy is unique in that those who suffer from it tyPicaly fall almost instantaneously into REM sleep.
It is thought that narcolepsy is caused by a malfunctioning of the hypothalamus in brain.

1466. Max duration of time spent is in NREM stage ?

a) I

b) II

c) III

d) IV

Correct Answer - B
Ans. B. II

1467. NREM Sleep true is ?

a) Teeth grinding

b) Narcolepsy

c) Nightmares

d) Sleep paralysis

Correct Answer - A
Ans. A. Teeth grinding
Slow wave sleep (stage 3 & 4 of NREM sleep) disorders r Sleep walking (somnambulism), night terror (sleep terror or pavornocturnus), Nocturnal enuresis, Bruxism (teeth grinning), and sleep talking (somniloquy).
REM sleep events/disorder:- Nightmares, nocturnal penile tumescence, Narcolepsy.

1468. Bruxism is ?

a) Walking during sleep

b) Nocturnal enuresis

c) Grinding of teeth during sleep

d) Sleep apnoea

Correct Answer - C
Ans. C. Grinding of teeth during sleep

1469. Narcolepsy, not true ?

a) Cataplexy

b) Sleep architecture normal

c) Loss of muscle tone

d) Hallucination

Correct Answer - B
Ans. B. Sleep architecture normal
There is disturbed REM sleep.
Cataplexy (sudden loss of muscle tone) is the most common accessory symPtom.
There may be hallucinations.

1470. How to differentiate between psychological and organic erectile dysfunction ?

a) Nocturnal penile tumescence

b) PIPE therapy

c) Sildenafil induced erection

d) Squeeze technique

Correct Answer - A

Ans. A. Nocturnal penile tumescence

One of the important method to distinguish psychogenic impotence from organic imPotence is nocturnal penile tumsescence & early morning erection which are preserved in psychogenic impotence but not in organic cause of impotence.

1471. Desensitization is a type of ?

a) Psychotherapy

b) Psychoanalysis

c) Behavioral therapy

d) None

Correct Answer - C
Ans.C. Behavioral therapy
Types of behavioral therapy are : - Systemic desensitization, therapeutic graded exPosure, exPosure & response prevention, flooding, aversion therapy, and operant conditioning.

1472. Stimulant drug is given to child for ?

a) Conduct disorder

b) Speech developmental disorder

c) Pervasive disorder

d) ADHD

Correct Answer - D
Ans.D. ADHD
Stimulants (like methylphenidate, dextramphetamine) are the drugs of choice for ADHD.

1473. Klein levin syndrome ?

a) Insomnia

b) Anxiety

c) Depression

d) Hypersomnia

Correct Answer - D
Ans. D. Hypersomnia
Kleine levin syadrome or sleeping beauty syndrome is a neurological disorder of recurring periods of excessive amounts of sleeping and eating.

1474. According to recent rounds by DSM what code is given to psychiatric diseases in ICD 10 ?

a) E

b) F

c) P

d) G

Correct Answer - B
Ans. B. F
ICD -10 is WHO classification for all diseases and health problems (and not only psychiatric disorders).
ICD-10 uses alpha numeric code made of an alphabet à in contrast DSM-IV uses numerical coding) à 'F' is for mental disorders.
There are l0 main categories denoted by digits 0 to 9.

1475. **The current agent of choice for treatment of bipolar affective (manic-depressive) disorder is:**

a) Chlorpromazine

b) Haloperidol

c) Diazepam

d) Lithium carbonate

Correct Answer - D
Lithium carbonate is the current agent of choice, particularly during the manic phase. Because the onset of action is slow, concurrent use of antipsychotic agents such as chlorpromazine or haloperidol may be necessary to control mania.

Concurrent use of tricyclic antidepressants may be necessary in the depressive phase.

Monitoring of lithium levels is necessary because of the serious nature of the adverse effects (neurologic, renal, cardiac).

Ref: Ropper A.H., Samuels M.A. (2009). Chapter 57. Depression and Bipolar Disease. In A.H. Ropper, M.A. Samuels (Eds), *Adams and Victor's Principles of Neurology*, 9e.

1476. DSM IV criterion for depression is?

a) 1 week

b) 2 weeks

c) 3 weeks

d) 4 weeks

Correct Answer - B

Ans. B. 2 weeks

- For the diagnosis of minor depression 2-4 and for major depression > 5 DSM IV symptoms are required for at least for a two week period.

1477. Type of connective tissue present in the arrow marked area is:

a) Loose and irregular

b) Specialized

c) Dense irregular

d) Dense regular

Correct Answer - C

Ans. C. Dense irregular

- The marked area is reticular dermis.
- It is composed of dense irregular collagenous connective tissue (most commonly type I collagen) containing the usual array of connective tissue elements, including cells, blood and lymphatic vessels.

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