1. Adduction at wrist is caused by ?

a) Flexor carpi radialis

b) Extensor pollics longus

c) Extensor carpi ulnaris

d) Flexor digitorum profundus

Correct Answer - C
Ans. C. Extensor carpi ulnaris

Origin and insertion:

- It originates from the lateral epicondyle of the humerus and the posterior border of the ulna, and crosses the forearm to the ulnar (medial) side to insert at the base of the 5th metacarpal.

Action:

- The extensor carpi ulnaris extends the wrist, but when acting alone inclines the hand toward the ulnar side; by its continued action it extends the elbow-joint.
- The muscle is a minor extensor of the carpus in carnivores, but has become a flexor in ungulates. In this case it is described as ulnaris lateralis.

Innervation:

- Despite its name, the extensor carpi ulnaris is innervated by the posterior interosseous nerve (C7 and C8), the continuation of the deep branch of the radial nerve.
- It would therefore be paralyzed in an injury to the posterior cord of the brachial plexus.

2. Not an abductor of shoulder ?

a) Deltoid

b) Trapezius

c) Supraspinatus

d) Latissimus dorsi

Correct Answer - D
Latissimus dorsi

- Abduction is initiated by supraspinatus, which is responsible abduction upto 15°. After that deltoid (acromial or middle fibers) is the major abductor upto 90° of abduction. These two muscles, supraspinatus and deltoid are the prime movers for abduction.
- Overhead abduction (> 90°) is caused by trapezius and serratus anterior, which act by causing upward rotation of glenoid cavity.

3. **In a 24 year old man weight of the upper limb is transmitted to the axial skeleton by?**

a) Coracoacromial ligament

b) Coracoclavicular ligament

c) Costoclavicular ligament

d) Coracohumeral ligament

Correct Answer - B

The axial skeleton shapes the longitudinal axis of the human body. Coracoclavicular ligament suspends the scapula from the lower one third of the clavicle and forms a strong bond between them. The weight of the upper limb is transmitted to the axial skeleton through this ligament. A fracture of the clavicle, medial to the attachment of this ligament leads to drooping of upper limb.

4. Supination in flexed elbow is produced by ?

a) Supinator

b) Biceps

c) Coracobrachialis

d) Brachialis

Correct Answer - B
Ans. B. Biceps

5. Carpal bone which articulates with radius ?

a) Trapezium

b) Scaphoid

c) Capitate

d) Hamate

Correct Answer - B
Two carpal bones articulate with radius: Scaphoid and lunate.

6. Nerve supply of opponens pollicis ?

a) Superficial branch of ulnar nerve

b) Deep branch of ulnar nerve

c) Median nerve

d) Posterior interosseous nerve

Correct Answer - C

Hand muscles supplied by median nerve are :-

i) Thenar muscles (except adductor pollicis) :- Flexor pollicis brevis, opponens pollicis and *abductor pollicis brevis. Adductor pollicis is supplied by ulnar nerve.*

ii) First two lumbricals.

Hand muscles supplied by ulnar nerve are *:?*

1) Superficial terminal branch : It supplies *palmaris brevis* and skin of palmar surface of medial 1% fingers.

2) Deep terminal branch : It supplies adductor pollicis, all interossei, medial two (3^{rd} & 4^{th})lumbricals and all hypothenar muscles except palmaris brevis (i.e. abductor digiti minimi, flexor digiti minimi, opponens digiti minimi).

7. Ulnar nerve supplies all except ?

a) FCU

b) 1st lumbrical

c) 4^{th} lumbrical

d) Dorsal interossei

Correct Answer - B
1st lumbrical

8. Deep branch of ulnar nerve supplies all except ?

a) Adductor pollicis

b) Abductor digiti minimi

c) Flexor digiti minimi

d) Opponens pollicis

Correct Answer - D
Various branches of ulnar nerve are :?
A) In arm : No branch.
B) In forearm : There are following branches *:?*
1) Muscular : In proximal part of forearm it supplies flexor carpi ulnaris and ***medial*** half of flexor digitorum profundus.
2) Cutaneous : There are two cutaneous branches in forearm:-
i) Palmar cutaneous branch : Supplies skin over the hypothenar eminence.
ii) Dorsal (posterior) cutaneous branch : Supplies skin over medial 1/3 of dorsum of hand and dorsal surface of medial 11/2 fingers.
C) In hand : Ulnar nerve enters the palm by passing superficial to flexor retunuculum and divides into two terminal branches *:?*
1) Superficial terminal branch : It supplies *palmaris brevis* and skin of palmar surface of medial 11/2 fingers.
2) Deep terminal branch : It supplies adductor pollicis, all interossei, medial two (3"^{1} & 4th)lumbricals and all hypothenar muscles except palmaris brevis (i.e. abductor digiti minimi, flexor digiti minimi, opponens digiti minimi).

9. Nerve supply of pronator teres ?

a) Ulnar nerve

b) Median nerve

c) Posterior interosseous

d) Radial nerve

Correct Answer - B
Median nerve

10. Wrist drop is due to injury to ?

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Posterior interosseous nerve

Correct Answer - A

Clinical features of radial nerve palsy

- Clinical features depend upon the site of lesion.

1) If lesion is high

- Wrist drop, thumb drop and finger drop.
- Inability to extend elbow, wrist, thumb & fingers (MP joint)
- Patient can extend interphalangeal joints due to action of lumbricals and interossei.
- Sensory loss over posterior surface of arm & forearm and lower lateral half of forearm.

2) If lesion is low

a) *Type I*

- Wrist drop, thumb drop and finger drop.
- Elbow extension is preserved.
- Sensory loss over the dorsum of first web space.

b) *Type II*

- Thumb drop and finger drop
- Elbow and wrist extension is preserved
- Sensory loss over the dorsum of first web space.

11.

Axillary nerve is a branch of which part of brachial plexus ?

a) Trunk

b) Medial cord

c) Lateral cord

d) Posterior cord

Correct Answer - D
Supraclavicular branches of brachial plexus
Branches of brachial plexus which are above the clavicle are called supraclavicular branches.
These *arise from roots and trunks.*

12. De-Quervain's tenosynovitis affects ?

a) FPL & FPB

b) EPL & APL

c) EPB & APL

d) FDP & FDS

Correct Answer - C

- De-Quervian's tenovaginitis is characterized by pain *over the styloid process of the radius* and palpable thickening in the course of the *abductor pollicis longus and extensor pollicis brevis tendons.*
- The *fibrous sheaths* of the abductor pollicis longus and extensor pollicis brevis tendons are thickened where they cross the tip of the radial syloid process.
- The tendons themselves appear normal as does the synovial lining of sheath.

13. Boundary of triangle of auscultation is not formed by?

a) Senatus anterior

b) Scapula

c) Trapezius

d) Latissimus dorsi

Correct Answer - A
Serratus anterior.

14. True about deep palmar arch ?

a) Main contribution is by ulnar artery

b) Lie superficial to lumbricals

c) Gives three perforating branches

d) Gives four palmar metacarpal arteries

Correct Answer - C

Deep palmar arch

- It lies across the base of metacarpal bones. It is formed mainly by radial artery and completed by deep branch of ulnar artery. Its branches are :-

i. *Three palmar metacarpal arteries* on the *II, III and IV* palmar interossei muscles to join the digital branches of superficial palmar arch.

i. *Three perforating arteries :-* Anastomose with dorsal metacarpal arteries.

i. *Recurrent branches :-* Supply carpal bones and join palmar carpal arch.

- The deep palmar arch lies deep to the oblique head of adductor pollicis, long flexor tendon and lumbrical muscles and passes across the base of metacarpal and interossei.

15. Posterior interosseous artery is a branch of ?

a) Radial artery

b) Ulnar artery

c) Brachial artery

d) Axillary artery

Correct Answer - B

Ulnar artery

It is the *larger terminal branch of brachial artery,* arising in the cubital fossa. In the distal two-third of forearm, it is accompanied by ulnar nerve. It enters the palm by passing superficial to flexor retinaculum and divides into superficial and deep terminal branches, just distal to pisiform. Its branches are ?

A) In cubital fossa

1) Anterior ulnar recurrent

2) Posterior ulnar recurrent

3) Common interosseous :- Divides into

i) Anterior interosseous

ii) Posterior interosseous

1) Palmar carpal branch

2) Dorsal carpal branch

C) In palm :- These are terminal branches.

1) Deep branch

2) Superficial branch

16. All are attached to coracoid process, except?

a) Coracobrachialis

b) Pectoralis minor

c) Short head of biceps

d) Long head of biceps

Correct Answer - D
Long head of biceps

17. Which upper limb muscle spans across shoulder and elbow joint?

a) Coracobrachialis

b) Biceps brachii

c) Lateralheadoftriceps

d) Brachialis

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

- Muscles that cross both shoulder and elbow are biceps (complete muscle, i.e. short head and long head) and triceps (only long head crosses the shoulder).

18. Musculocutaneous nerve supplies all of the following EXCEPT:

a) Coracobrachialis

b) Biceps brachii

c) Brachialis

d) Brachioradialis

Correct Answer - A
Suprascapular nerve arises from the upper trunk (formed by the union of the fifth and sixth cervical nerves).

19. Internal thoracic artery is a branch of ?

a) 1st part of subclavian artery

b) 2nd part of subclavian artery

c) 3rd part of subclavian artery

d) Thyrocervical trunk

Correct Answer - A
1st part of subclavian artery

20. Branches of internal thoracic artery are all except

a) Superior epigastric

b) Musculophrenic

c) Anterior intercostal

d) Posterior intercostal

Correct Answer - D

Internal thoracic artery

- It arises from 1st part of subclavian artery and descends through anterior ends of upper six intercostal spaces lying 1·25 cm lateral to sternal margin.
- It divides into two terminal branches, *musculophrenic and superior epigastric* in 6th intercostal space.
- Branches of internal thoracic artery are (i) mediastinal branches, (ii) pericardial branches, (iii) sternal branches, (iv) pericardiophrenic branches, (v) anterior intercostal arteries (in upper six spaces), (vi) perforating branches, and (vii) two terminal branches, musculophrenic and superior epigastric.

21. Which of the following does not directly drain into right atrium ?

a) Great cardiac vein

b) Anterior cardiac vein

c) Thebasian vein

d) Venae cordis minimi

Correct Answer - A

Great cardiac vein

Great cardiac vein does not directly drains into right atrium. It drains into coronary sinus, which in turn drains into right atrium.

Veinous drainage of heart

1. *Coronary sinus :* Opens *into right atrium* and has following tributries : (i) Great cardiac vein, (ii) Middle cardiac vein, (iii) Posterior vein of left ventricule, (iv) Small cardiac vein, (v) Oblique vein of left atrium and (vi) Sometimes right marginal vein.
2. *Anterior cardiac vein :* Opens *into right atrium.*
3. *Venae cardis minimi (thebasian veins) : All these are extremely small veins in the walls of all the 4 chambers of the heart. They open directly into the respective chambers. They're most numerous in the right atrium.*
4. *Right marginal vein :* More often opens into right atrium but sometimes into coronary sinus.

22. Tributary of coronary sinus ?

a) Anterior cardiac vein

b) Thebesion vein

c) Smallest cardiac vein

d) Great cardiac vein

Correct Answer - D

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.

Tributaries of coronary sinus are :

i) Great cardiac vein :- Lies in the anterior interventricular groove. *Left marginal vein* drains into it.

ii) Middle cardiac vein :- Lies in the posterior interventricular groove.

iii) Posterior vein of left ventricle.

iv) 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.*

v) 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).

23. Which structures passes along with esophagus through esophageal opening of diaphragm ?

a) NC

b) Gastric nerves

c) Aorta

d) Thoracic duct

Correct Answer - B
Gastric nerves

24. Right border of heart is formed by ?

a) Right ventricle

b) Right atrium

c) SVC

d) IVC

Correct Answer - B

External features of heart

The heart has following borders and surfaces :-

A) Borders

i) Right border :- Formed by right atrium.

ii) Left border (obtuse margin):- Formed mainly by left ventricle and partly by left auricle (in its upper most part).

iii) Inferior border (acute margin):- Formed mainly by right ventricle and partly by left ventricle near apex.

iv) Upper border :- Mainly by left atrium and partly by right atrium where SVC enters.

v) Apex :- Formed by left ventricle.

B) Surfaces

i) Anterior *(sternocostal) surface :-* Formed mostly by right ventricle (major) and right auricle and partly by left ventricle and left auricle.

ii) Inferior (diaphragmatic) surface :- It is formed by left ventricle (left 2/3) and right ventricle (right 1/3). It is traversed by posterior interventricular groove (PIV) containing PIV branch of RCA.

25. Crista terminalis is present in ?

a) Left atrium

b) Left ventricle

c) Right atrium

d) Right ventricle

Correct Answer - C
Crista terminalis (divides the right atrium into anterior and posterior part) is a ridge of smooth muscle fibers extending from the SVC to valve of IVC.
It is developed from *embryonic right venous valve* and is represented on the surface by *sulcus terminalis.*

26. Which of the following is false regarding coronary circulation ?

a) Anterior 2/3 of septum is supplied by LCA

b) Posterior 1/3 of septum is supplied by RCA

c) Right bundle branch is supplied by RCA

d) Left bundle branch is supplied by LCA

Correct Answer - C
Right coronary artery supplies (i) SA node (in 65%), (ii) whole conducting system (AV bundle, bundle of his, part of left bundle branch) except RBB and part of left branch of AV bundle, (iii) posterior part of ventricular septum, (iv) 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 (i) most of the left atrium, (ii) most of the left ventricle including apex, (iii) small part of right ventricle odjoining anterior interventricular septum, (iv) anterior 2/3 of ventricular septum, (v) RBB, LBB and (vi) SA node in 35% of cases.

27. Subcostal nerve lies at -

a) Above llth rib

b) Below llth rib

c) Above 12th rib

d) Below l2th rib

Correct Answer - D

Ans. is'd'i.e., Below 12th rib

- Subcostal nerve runs along the lower border of 12th rib.
- It also supplies syramidialis.

28. Thoracic duct enters from abdomen to thorax at ?

a) T6

b) T10

c) T12

d) T8

Correct Answer - C

- Thoracic duct is also called as Pecquet duct. It is the *largest lymphatic duct* in body, about 45 cm (18 inches) long. o It has a *beaded appearance* because of the presence of many valves in its lumen.
- Thoracic duct begins as a continuation of the upper end of the cisterna chylinear the lower border of Tuvertebra and enters the thorax through the aortic opening of diaphragm (at T_{12}).
- It then ascends through the posterior mediastinum and at T_5 level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck.
- At the level of C_7 vertebrae, arches towards left side to open into left brachiocephalic vein at the angle of union of left subclavian and left internal jugular veins.

29. Constriction of esophagus are all EXCEPT:

a) Arch of aorta

b) Left main bronchus

c) Left atrium

d) Diaphragm

Correct Answer - C
Left atrium
APPLIED ANATOMY OF OESOPHAGUS:
It is a fibro muscular tube, about 25 cm long in an adult. It extends *from the lower end of pharynx (C6) to the cardiac end of stomach (T11).* It runs vertically but inclines to the left from its origin to thoracic inlet and again from T7 to oesophageal opening in the diaphragm. It shows three normal constrictions and it is important to know their location at oesophagoscopy. They are:

1. At pharyngo-oesophageal junction (C6) - 15 cm from the upper incisors.
2. At crossing of arch of aorta and left main bronchus (T 4) - 25 cm from upper incisors.
3. Where it pierces the diaphragm (T 10) - 40 cm from upper incisors.

30. The length of esophagus in adult is ?

a) 10cm

b) 15cm

c) 20 cm

d) 25 cm

Correct Answer - D

Esophagus

It is a narrow muscular tube measuring 25 cm long connecting pharynx with stomach.

It begins as a continuation of laryngopharynx at the level of lower border of cricoid cartilage at the level of C6 vertebrae and passes through the diaphragm at the level of T_{i}o through esophagial hitus of diaphragm.

It ends at T_{11} level by opening into cardiac orifice of stomach.

Oesophagus does not have straight course rather it presents anteroposterior curvatures.

It is lined by stratified squamous nonkeratinized epithelium.

Esophagus is divided into three parts (i) Cervical part (4 cm), (ii) Thoracic part (20 cm), and (iii) abdominal part (1-2 cm).

31. Not a middle mediastinal structure ?

a) Pulmonary trunk

b) Phrenic nerve

c) Thymus

d) Heart

Correct Answer - C
Thymus

32. Respiratory bronchiole proceed into ?

a) Terminal bronchiole

b) Bronchi

c) Tertiary bronchiole

d) Alveolar duct

Correct Answer - D

Respiratory tract anatomy

- Nasal cavity, oral cavity, plarynx and larynx forms upper respiratory tract. Larynx opens into lower respiratory tract which starts from Trachea. Trachea bifurfactes into bronchi (principal bronchi). Progressive branching of bronchi forms *bronchioles.* Further branching of bronchioles leads to *terminal bronchioles.* Terminal bronchiole emnate into *respiratory bronchioles. Respiratory bronchioles* proceed into the *alveolar ducts,* wich immediately branch into *alveolar sacs (alveoli).*

33. Ture about terminal bronchioles are all except ?

a) Absence of cartilage

b) Presence of clara cells

c) Absence of smooth muscles

d) Absence of submucous glands

Correct Answer - C

- Terminal bronchioles contain Clara cells which secrete a protein that lines the small air passages. Alveoli (alveolar sac) are lined by type 1 pneumocytes (95%) and type 2 pneumocytes (5%). Type 2 pneumocytes secrete surfactant and also helps in repair of alveoli after destruction of type- 1 pneumocytes. Pores of Kohn are present in alveolar wall to allow passage of bacteria and exudate between adjacent alveoli.
- Terminal bronchi contain maximum smooth muscle cells relative to wall thickness.
- Cartilage is found in larynx, trachea and bronchi but not in bronchioles.
- Submucosal glands are particularly numerous in medium-sized bronchi and disapperar in distal terminal bronchioles.

34. All are true about bronchopulmonary segment except -

a) Have independent single artery

b) Have independent single vein

c) Pyramidal in shape

d) Have a independent sagmental tertiary bronchus

Correct Answer - B
Each branchopulmonary segment is drained by intersegment parts of pulmonary vein that lie in intersegmental space and drain adjacent segments.
Thus each segment does not have its independent segmetal vein and each segment drains into more than one vein. Each vein drains more than one segment.
Features of bronchopulmonary segments
Characteristic features of each bronchopulmonary segment are :?
1) Is a pyramidal shaped segment of lung, with its apex facing the lung root and its base at the pleural surface.
2) Is the largest subdivision of a lobe.
3) Is an independent respiratory unit.
4) Is separated from adjacent segments by connective tissue septa which form intersegemental planes.
5) Is surrounded by connective tissue which is continuous on the surface with pulmonary pleura.
6) Is supplied independently by a segmental (tertiary) bronchus and a tertiary branch of the pulmonary artery.
7) Is named according to the segmental bronchus supplying it.
8) Is drained by intersegmental parts of the pulmonary veins that lie in intersegmental space and drain adjacent segments. Thus each

segment has more than one vein and each vein drains more than one segment.

9) Is not a bronchovascular segment, because it does not have its own vein.

10) Is surgically resectable : During removal, the surgeon works along the pulmonary vein to isolate a particular segment.

35. **The key to the root of the neck is the scalenus anterior muscle. Which among the following is TRUE about scalenus anterior?**

a) Not Pierced by phrenic nerve

b) Attached to scalene tubercle on 2nd rib

c) Separates subclavian artery from subclavian vein

d) Pierced by phrenic nerve

Correct Answer - B

- The *subclavian vein* forms an arch across the pleura at a level below the arch of subclavian artery. The two arches are separated from each other by scalenus anterior muscle.
- *Scalenus anterior* arises from the anterior tubercles of C3-C6 and attaches to the scalene tubercle and adjacent ridge on the inner border and upper surface of the first rib.
- *Phrenic nerve* passes vertically down across the obliquity of the muscle, plastered there to by the prevertebral fascia.
- *Transcervical and suprascapular arteries* lie between the scalenus anterior and the carotid sheath.

36. Root value ofsciatic nerve

a) SIS2S3

b) L4L5SlS2S3

c) L2L3L4

d) L1L2L3

Correct Answer - B
Ans. B.L4L5SlS2S3

- Root value of sciatic nerve is L4L5S1 S2S3

37. Nerve root of pudendal nerve is ?

a) $S_1S,S,$

b) S,S3S,

c) S_3-S,

d) S2-S3

Correct Answer - B
Ans. is 'b' i.e., $S_2S_3S_4$

Nerve	**Root valve**
Siatic nerve	L 4, 5 S 1,2,3 L
Tibial nerve	4, 5 S 1,2,3
Common peroneal nerve	L4,5 S 1,2
Superior gluteal nerve	L 4,5 S 1
Inferior gluteal nerve	L 5 S 1,2
Nerve to quadratus femoris	L 4,5 S 1
Nerve to obturatus internus	L 5 S 1,2
Superior gemellus	L 4,5 S 1
Infeior gemellus	L 4,5 S 1,2 S
Posterior cutaneous nerve of thigh	L2,3
Pudendal nerve	S2,3,4
Perforating cutaneous nerve	S2,3

38. Nerve that winds around neck of fibula ?

a) Tibial nerve

b) Deep peroneal nerve

c) Superficial peroneal nerve

d) Common peroneal nerve

Correct Answer - D
Common peroneal nerve *winds around neck offibula to enter peroneus longus muscle.* Because of its subcutaneous position it can be easily palpated here and is very prone to injury. So fracture neck of fibula may cause *foot drop.*

39. True about attachments at ischeal tuberosity ?

a) Origin of semitendinosus from superolateral area

b) Origin of semimernbranosus from superolateral area

c) Origin of long head of biceps from superolateral area

d) Origin of adductor magnus from superolateral area

Correct Answer - B
Attachments of ischeal tuberosity -
i) Superolateral Orgin of *semimembranosus.*
ii) Inferomedial :- Origin of *semitendinosus and long head of biceps.*
iii) Outer lower area :- Origin of *adductor magnus .*
Medial margin gives attachment to *sacrotuberous ligament.*
Lateral border gives attachment to ischeofemoral ligament.

40. Anterior division of femoral nerve supplies ?

a) Rectus femoris

b) Sartorius

c) Iliacus

d) Pectineus

Correct Answer - B

Branches of femoral nerve are *:?*

1) From the main trunk :- Nerve supply to iliacus, nerve supply to pectineus and a few vascular branches.

2) From anterior division :- Intermediate femoral cutaneous nerve (intermediate cutaneous nerve of thigh), medial femoral cutaneous nerve (medial cutaneous nerve of thigh) and muscular branch to sartorius.

3) From posteior division :- Saphenous nerve, nerve supply to quadriceps femoris (rectus femoris, vastus medialis, vastus lateralis, vastus intermedius).

4) Articular supply :- Hip joint is supplied by nerve to rectus femoris; knee joint is supplied by nerve to three vasti.

41. Equinus deformity refers to ?

a) Inversion of foot

b) Eversion of foot

c) Plantar flexion at ankle

d) Dorsi flexion at ankle

Correct Answer - C
Equinus deformity refers to plantar flexion at ankle joint with inability to do dorsi-flexion.
It may be either congenital or acquired.
Most common cause is contracture of gostracnemius or soleus or both.

42. True regarding origin and insertion of piriformis ?

a) Origin from sacrum & ilium and insertion on LT

b) Origin from sacrum & ilium and isertion on GT

c) Origin from ischeal tuberosity and insertion on LT

d) Origin from ischeal tuberosity and insertion on GT

Correct Answer - B
Origin from sacrum & ilium and isertion on GT

43. Which is not a branch of anterior division of internal iliac artery ?

a) Inferior vesical

b) Internal pudendal

c) Iliolumbar

d) Inferior gluteal

Correct Answer - C
Branches of anterior division of internal iliac artery are :
(i) Superior vesical
(ii) Middle rectal
(iii) Inferior *vesical* (in males),
(iv) Internal *pudendal,*
(v) Vaginal (in females),
(vi) *Uterine* (in females)
(vii) *Obturator*
(viii) Inferior *gluteal.*
Branches of posterior division are : (i) Iliolumbar, (ii) Lateral sacral, and (iii) Superior gluteal.

44. Prostatic artery is a branch of ?

a) Superior vesical artery

b) Middle vesical artery

c) Inferior vesical artery

d) Superior rectal artery

Correct Answer - C

Protate is supplied by branches (prostatic branches) of :-

i) Inferior vesical artery

ii) Middle rectal artery

iii) Internal pudendal artery

45. True about pectinate line ?

a) Blood supply above pectinate line is through superior rectal artery

b) Lymphatic drainage above pectinate line is through superfical inguinal nodes

c) Part above pectinate line develops from proctodeum

d) Part above pectinate line is supplied by somatic nerves

Correct Answer - A

Blood supply above pectinate line is through superior rectal artery

Part of anal canal above pectinate line develops from dorsal part of *endodermal cloaca* (primitive rectum) and part of anal canal below pectinate line develops from *ectodermal proctodeum.*

Mucous membrane above pectinate line is supplied by autonomic nerves (sympathetic L_1 L_2 and parasympathetic: S_2 S_3 S_4) and therefore is insensitive to pain. Part below the pectinate line is supplied by somatic nerves (inferior rectal nerve a branch of pudendal nerve) and therefore is sensitive to pain. Thus pain sensations are carried by pudendal nerve.

Pectinate line forms the *water-shed line* of anal canal. Area above pectinate line drains into internal iliac nodes and area below it drains into superficial inguinal nodes.

Arterial supply of the area is above pectinate line is through superior rectal artery (continuation of inferior mesenteric artery) and area below pectinate line is supplied by inferior rectal artery.

46. Nerve supply above pectinate line is through ?

a) Inferior rectal nerve

b) Pudendal nerve

c) Autonomic nerves

d) Perineal branch of S_4

Correct Answer - C

Nerve supply of anal canal

Mucous membrane above pectinate line is supplied by autonomic nerves (sympathetic L_1 L_2 and parasympathetic: S_2 S_3 S_4) and therefore is insensitive to pain.

Part below the pectinate line is supplied by somatic nerves (inferior rectal nerve a branch of pudendal nerve) and therefore is sensitive to pain.

Thus pain sensations are carried by pudendal nerve.

47. Relation of caudate lobe of liver is :

a) Posterior to portal vein

b) Anterior to right inferior phrenic artery

c) Posterior to ligamentum teres

d) Posterio to ligamentum venosum

Correct Answer - B
B. i.e. Anterior to right inferior phrenic artery

48. Liver segment which is physiologically independent?

a) Segment I

b) Segment II

c) Segment III

d) Segment IV

Correct Answer - A
Caudate lobe (segment I) is a physiological independent part of liver, supplied by both right and left hepatic arteries; right and left branches of portal vein and drains bile into both right and left hepatic duct.

49. All are component of urogenital diaphragm except :

a) Left transverse perenii profundus

b) Right transverse perenii profundus

c) Sphincter Urethrae

d) Transverse perenii superficialis

Correct Answer - D
D i.e. Transverse perenii superficialis
- Superficial perineal muscles *include bulbospongiosus, ischiocavernosus & superficial transverse perinei*
- Perineal body is formed by *superficial & deep transverse perini, levator ani, bulbospongiosus,* sphincter urethrae & external anal sphincter.

Superficial transverse perinii muscle is a part of perineal body & is cut in episiotomy but is not a part of urgenital diaphragm, which is formed by deep transverse perinii, sphincter urethrae and perineal membrane

50. Not a content of deep perineal pouch ?

a) Membranous urethra

b) Artery of the penis

c) Urethral artery

d) Bulbourethral glands

Correct Answer - C
Urethral artery

51. Content of superficial perineal pouch ?

a) Sphincter urethrae

b) Deep transverse perinei

c) Bulbospongiosus

d) Artery of penis

Correct Answer - C
Bulbospongiosus

52. Nerve suply of cremastric muscle ?

a) Pudendal nerve

b) Femoral branch of genitofemoral

c) Genital branch of genitofemoral nerve

d) Ilioinguinal nerve

Correct Answer - C
Genital branch of genitofemoral nerve
Cremastric muscle is a muscle of scrotum. It is supplied by genital branch of genitofemoral nerve.

53. All form the boundaries of ovarian fossa, except ?

a) Ureter

b) Internal pudendal artery

c) Obliterated umbilical artery

d) Internal iliac artery

Correct Answer - B
Each ovary lies in ovarian fossa an the lateral pelvic wall which is bounded :-
i) Anteriorly : Obliterated umblical artery
ii) Posteriorly : Ureter and internal iliac artery

54. Posterior relation of neck of pancreas ?

a) IVC

b) Origin of postal vein

c) Aorta

d) Common bile duct

Correct Answer - B
Ans. is 'b' i.e., Origin of portal vein

55. True about relations of renal artery and vein ?

a) Left renal vein passes behind aorta

b) Renal artery passes in front of IVC

c) Right renal vein shorter than left renal vein

d) Renal artery is a branch of internal iliac artery

Correct Answer - C

Ans. is 'c' i.e., Right renal vein shorter than left renal vein

Renal vasculature

Each kidney is supplied by renal artery (branch of abdominal aorta) and is drained by *renal vein to IVC.* o Renal artery :- Right renal artery is longer and passes behind IVC. Renal artery divides into : ?

a) *Posterior division :-* Supplies posterior segment.

b) *Anterior division :-* Divides further into 4 branches to supply apical, upper anterior, middle anterior and lower segments.

Renal vein :- Left renal vein is longer and passes in front of abdominal aorta, behind the origin of superior mesenteric artery. Therefore, it may be compressed in the narrow angle between the two arteries. Left renal vein also receives left inferior phrenic vein, left gonadal vein and left suprarenal (adrenal) vein. Each renal vein begins beneath the true capsule as stellate vein.

56. Morrison's pouch is ?

a) Right subphrenic space

b) Right subhepatic space

c) Left subhepatic space

d) Left subphrenic space

Correct Answer - B

These spaces are just below diaphragm in relation to the liver.

These space are :

1) Intraperitoneal spaces are :-

i. Left anterior space (left subphrenic space).
i. Left posterior space (left subhepatic space or *lesser sac).*
i. Right anterior space, (right subphrenic space).
*R*ight posterior space (right subhepatic space or *hepatorenal pouch* or *Morrison's pouch).*

2) Extraperitoneal spaces are :-

i. Right and left extraperitoneal spaces.
i. Midline extraperitoneal space *(Bare area of liver).*

57.

Maximum number of mucosal folds are found in which part of fallopian tube

a) Infundibulum

b) Ampula

c) Isthmus

d) Interstitial part

Correct Answer - B

Mucosa of fallopian tube

Mucosa of fallopian tube is folded to form numerous longitudinal folds which project into the lumen. *Maximum numbers of these folds are present in the ampulla.*

- The mucosa is covered by simple columnar epithelium.
- The epithelium has two types of cells :?

1. Ciliated cells
2. Non-ciliated secretory cells *(peg cells)*

- Secretion of peg cells provides nutrition to ovum.

58. Lymph from glans penis drains into ?

a) Superficial inguinal nodes

b) Deep inguinal lymph nodes

c) Obturator nodes

d) Internal iliac nodes

Correct Answer - B
Vessels from the glans penis drain into the deep inguinal lymph nodes (gland of Cloquet)
From rest of the penis, lymph drains into the superficial inguinal lymph nodes.

59. Root of mesentery is crossed by ?

a) Left testicular artery

b) Left ovarian artery

c) IVC

d) Left ureter

Correct Answer - C

Attached border of mesentery (root of mesentery) **crosses -**

1. *Third (horizontal) part of duodenum*
2. *Abdominal aorta*
3. ***IVC***
4. *Right ureter*
5. Right psoas major

60. All are true about boundries of epiploic foramen except -

a) Anterior : portal vein & hepatic artery

b) Posterior : IVC

c) Inferior : liver

d) Inferior : duodenum

Correct Answer - C

Epiploic foramen (foramen of winslow or aditus to lesser sac) is a slit-like opening through which lesser sac communicates with greater sac. It is situated at the level of T_{12} vertebra. Its boundries are :-

- Anterior :- Right free margin of lesser omentum (contains portal vein, hepatic artery proper and bile duct).
- Posterior :- IVC, right suprarenal gland and T_{12} vertebra.
- Superior :- Caudate lobe of liver.
- Inferior :- 1^{st} part of duodenum and horizontal part of hepatic artery.

61. Which leaves the pelvis ?

a) Piriformis

b) Sciatic nerve

c) Superior gluteal vessel

d) Inferior gluteal vessel

Correct Answer - B

- Sciatic nerve leaves the pelvis and runs posteriorly in the thigh.
- In the upper angle of popliteal fossa, sciatic nerve divides into tibial nerve and common peroneal nerve

62. Colon is supplied by all except ?

a) Inferior mesenteric artery

b) Ileocolic artery

c) Middle colic artery

d) Internal iliac artery

Correct Answer - D

The blood supply of colon is derived from the marginal artery of Drummond. It is a paracolic anastomotic artery formed by anastomosis between *colic branches of superior mesentric artery (ileocolic, right colic, middle colic) and colic branches of inferior mesenteric artery (left colic and sigmoidal arteries).* Terminal branches from marginal artery are distributed as long and short vessels *vasa longa* and *vasa bravia.*

- There are areas of colon with poor blood supply resulting from incomplete anastomosis of marginal arteries. These are watershed areas of colon and include :

1. Splenic flexure (Griffith point) : Watershed area between superior mesenteric artery and inferior mesenteric artery.
2. Rectosigmoid junction (Sudeck's point) : Watershed zone between *inferior mesenteric artery and internal iliac artery.*

63. Valve of Hasner ?

a) Opening of nasolacrimal duct

b) Sphenoidal sinus opening

c) Frontal sinus opening

d) Ethmoidal sinus opening

Correct Answer - A
Ans. is 'a' i.e., Opening of nasolacrimal duct
Lateral wall of nose

- It 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 a part of ethmoidal bone.* Below and lateral to each turbinate is the corresponding meatus. Inferior turbinate is largest one.

1. Inferior meatus

- It is the largest meatus. It's highest point is the junction of anterior and middle 1 /3rd. Nasolacrimal duct opens in the inferior meatus, just anterior to its highest point (it is closed by a mucosal flap called Hasner's valve).

2. Middle meatus

- It lies below the middle turbinate (middle concha), i.e. between middle turbinate and inferior turbinate. The important structures in middle meatus are :-
- Hiatus semilunaris
- *Ethmoidal infundibulum :- Frontal sinus, maxillary sinus and the anterior ethmoidal sinuses drain into it.*
- Anterior /Posterior fontanelle :- Accessory ostia are found mostly in the posterior fontanelle.
- Uncinate process :- It partly covers the opening of maxillary sinus.

- Bulla ethmoidalis :- Middle ethmoidal sinuses open on or above it.
- Atrium is a shallow depression in front of the middle turbinate. Agger nasi is an elevation just anterior to the attachement of middle turbinate.

3. Superior meatus

- It lies below the superior turbinate and *posterior ethmoidal sinuses open into it.*

4. Spheno-ethmoidal recess

- It lies above the superior turbinate and *receives the opening of sphenoid sinus.*

64. Mandibular nerve passes through ?

a) Formanen rotundum

b) Foramen lacerum

c) Stylomastoid foramen

d) Foramen ovale

Correct Answer - D
Foramen ovale

65. All muscles of pharynx are supplied by pharyngeal plexus except -

a) Palatopharyngngeus

b) Stylopharyngeus

c) Salpingopharyngeus

d) Superior constrictor

Correct Answer - B
All muscles of pharynx are supplied by cranial accessory through branches of vagus via pharyngeal plexus except stylopharyngeus which is supplied by glossopharyngeal.
The inferior constrictor receives an additional supply from the external and recurrent laryngeal nerves.

66. Posterior belly of digastric is supplied by

a) Facial nerve

b) Mandibular nerve

c) Glossopharyndeal nerve

d) Trochlear nerve

Correct Answer - A
Ans. is `a' i.e., Facial nerve

67. True about larynx in neonate:

a) Epiglottis is large and omega shaped

b) Cricoid narrowest part

c) It extends till C4,5,6 vertebrae

d) a and b

Correct Answer - D

Ans. D. Epiglottis is large and omega shaped and Cricoid narrowest part

Infant's Larynx Differs from Adult in:

1. It is situated high up (C2 - C4).° (in adults = C3 - C6)
2. Of equal size in both sixes (in adults it is larger in males)
3. Larynx is funnel shaped
4. The narrowest part of the infantile larynx is the junction of subglottic larynx with trachea and this is because cricoid cartilage is very small

Cartilages:

1. **Epiglottis is omega shaped, soft, large and patulous.**
2. Laryngeal cartilages are soft and collapse easily
3. Thyroid cartilage is flat
4. Arytenoid cartilage is relatively large
5. The cricothyroid and thyrohyoid spaces are narrow
6. The submucosal tissue is thick and loose and becomes oedematous in response to inflammation
7. Vocal cords are angled and lie at level of C8
8. Trachea bifurcates at level of T9

68. Prussak's space is related to -

a) Mesotympanum

b) Epitympanum

c) Hypotympanum

d) Inner ear

Correct Answer - B
The middle ear lies between the tympanic membrane laterally and the cochlea medially. The middle ear (tympanic cavity) is divided into :?
A) Mesotympanum (tympanic cavity proper)
It is the *narrowest part of tympanic cavity (transverse dimension is 2 mm).* It lies opposite to pars tensa.
B) Epitympanum (attic)
It is the part of tympanic cavity which extends above the tympanic membrane (pars tensa) and lies opposite (medial) to shrapnel's membrane (pars flacida) and bony lateral attic wall. It is the *widest part of tympanic cavity (transverse dimension is 6 mm).*
Epitympanum (attic) communicates with mastoid air cell system, through a small opening called *aditus. Prussak's space* communicates with epitympanum through a posterior gap. Attic area (epitympanum) is a crowded place and only a thin plat of bone (tegmen) separates this region from middle cranial fossa. Any infection in this area is prone to affect the temporal lobe of brain through erosion of this plate. Infections and inflammations in this area are considered to be unsafe due to impending intracranial complications.

69. Dorello's canal transmits in tip of temporal bone

a) Middle maningeal artery

b) Mandibular nerve

c) Superior alveolar branch of maxillary

d) Abducent nerve

Correct Answer - D
Dorello canal is an opening to cavernous sinus that transmit abducent nerve underneath the superior petrosal sinus.

70. Ligament of Lockwood is seen at ?

a) Ear

b) Palate

c) TM joint

d) Orbit

Correct Answer - D
Fascia! sheath of eve ball (Bulbar fascia)
Tenon's Capsule is a fascial sheath around eye ball.
This fascial sheath in *pierced by* tendons of extraocular muscles and ciliary nerves and vessels. o Tenon's capsule (fascial sheath) gives following expansions *:?*

1. *Tubular sheath* which covers each orbital muscle.
2. *Medial check ligament* is a triangular expansion from sheath of medial rectus; it is attached to lacrimal bone.
3. *Lateral check ligament* is a triangular expasion from sheath of *lateral rectus* and is attached to zyomati bone.

71. Middle turbinate is a ?

a) Separate bone

b) Part of ethmoid

c) Part of sphenoid

d) Part of zygomatic

Correct Answer - B
There are three turbinates in the lateral wall of nose : superior, middle and inferior.
The inferior turbinate is a separate bone, while rest of the turbinates are a part of ethmoidal bone.
Below and lateral to each turbinate is the corresponding meatus.
Inferior turbinate is longest one.

72.

Mastoid antrum is present in which part of temporal bone?

a) Tympanic

b) Petrous

c) Squamous

d) Mostoid

Correct Answer - B

Mastoid

- It is an air sinus in the petrous temporal bone.
- Its upper anterior wall has the opening of aditus, while medial wall is related to posterior semicircular canal (SCC).
- Posteriorly lies the sigmoid sinus.
- The posterior belly of digastric muscle forms a groove in the base of mastoid bone.
- The corresponding ridge inside the mastoid lies lateral not only to sigmoid sinus but also to facial nerve and is a useful landmark.
- The roof is formed by tegmen antri separating it from middle cranial fossa and temporal lobe of brain. o Anteroinferior is the descending part of facial nerve canal *(or fallopian canal).*
- Lateral wall is formed by squamous temporal bone and is easily palpable behind the pinna.

73. Ventricles of brain are lined by ?

a) Ependymocytes

b) Astrocytes

c) Oligodendrocytes

d) Podocytes

Correct Answer - A
Ventricles of brain are lined by ependyma (ependymocytes).
Ventricles of brain
These are *cavities in the brain* lined by ependyma and filled with CSF.
They contain choroid plexuses wich secrete CSF.
These are four fluid filled intercommunicating cavities within the brain :-
i) Two lateral ventricles (right and left),
ii) Third ventricle, and
iii) Fourth ventricle. o Lateral ventricle communicates with third ventricle by *interventricular foramen (foramen of Monro).*
Third ventricle communicates with fourth ventricle by cerebral aqueduct *(aqueduct of sylvius).*
Fourth ventricle communicates with subarachnoid space by *a median foramen (Mangendie) and two lateral (Luschka) foramina.*

74. Temporal lobe contains ?

a) Primary visual area

b) Primary auditory area

c) Broca's area

d) Prefrontal area

Correct Answer - B

Functional areas of cerebral cortex

1. **Frontal lobe**
2. **Parietal lobe**
3. **Occipital lobe**
4. **Temporal lobe contains :-**

- *i) Primary auditory area (areas 41, 42):* Located in the anterior part of transverse temporal gyri of Heschl, and posterior part of superior temporal gyms.
- *ii) Auditory association cortex (secondary auditory area or area 22) :* It also includes Wernick's speech and is located in the posterior part of superior temporal gyrus**Occipital lobe**

75. Anterior horn of lateral ventricle is closed anteriorly by -

a) Thalamus

b) Septum pellucidum

c) Lamina terminalis

d) Corpus callosum

Correct Answer - D

Anterior horn of lateral ventricle is closed anteriorly by the genu and rostrum of corpus callosum.

Lateral ventricle

Two lateral ventricles are the *cavities of cerebral hemisphere (one in each hemisphere).* Each lateral ventricle communicates with third ventricle through *interventricular foramen of Monro.*

It is divisile into four parts :?

1) Central part (body) : It is located in the medial parts of frontal and parietal lobes. It extends from interventricular foramen (of Monro) in front to splenium of corpus callosum behind. It *has choroid plexus.* It has :- *o Roof :* Formed by corpus callosum.

i. *Floor :* Formed form lateral to medial by caudate nucleus (body), stria terminalis, thalamostriate vein, and lateral part of upper surface of thalamus.

i. *Medial wall (partition between two lateral ventricles) :* By septum pellucidum and body of fornix.

2) Anterior horn : It lies in front of interventricular foramen of Monro extending into the frontal lobe. It *has no choroid plexus.* Its bondries are :-

- *Anterior :* Posterior surface of genu and rostrum of corpus callosum.
- *Roof :* Anterior part of trunk of corpus callosum.

- *Floor :* Head of caudate nucleus and upper surface of rostrum of corpus callosum.
- *Medial (partition) :* Septum pellucidum and column of fornix.

3) Posterior horn : It lies behind splenium of corpus callosum and extends into occipital lobe. It may be variable in size *(may* be absent). It *has no choroid plexus.* Its boundries are :-

i. *Floor and medial wall :* Bulb of posterior horn raised by forceps major and calcar avis, an elevation raised by calcarine sulcus (anterior part).

i. *Roof and lateral wall :* Tapetum

4) Inferior horn : It is *the largest horn* and extends into *temporal lobe.* It *has choroid plexus.* Its boundries are

i. *Roof and lateral wall :* Tapetum, tail of caudate nucleus, stria terminalis and amygdaloid body.

i. *Floor : Collateral eminence* (elevation by collateral sulcus) and hippocampus medially.

76. Internal arcuate fibers of medulla comes from ?

a) Dorsal nucleus of vagus

b) Hypoglossal nucleus

c) Nucleus of tractus solitariu

d) Nucleus gracilis & cuneatus

Correct Answer - D
Ans. is 'd' i.e., Nucleus gracilis & cuneatus
The nucleus gracilis and cuneatus give rise to the *internal arcuate fibres.*
The fibres cross to the opposite side where they form a paramedian band of fibres, called the *medial lemniscus.*
In the lemniscus, the body is represented with the head posteriorly and the feet anteriorly.

77. Climbing fibres of cerebellar cortex are ?

a) Olivocerebellar fibres

b) Spinocerebellar fibres

c) Pontocerebellar fibres

d) Vestibulocerebellar fibres

Correct Answer - A
Input (afferent) cerebellum comes from two fibres.
1) Climbing fibres (olivocerebellar fibres) bring information from *inferior olivary nuclei only.*
2) Mossy fibres bring infrormation from all other parts of the body.

78. True about subarachnoid space ?

a) Between dura and arachnoid

b) Outside subdural space

c) Between dura and bone

d) Surround the conus

Correct Answer - D

- Subarachnoid space is the space between arachnoid and pia maters
- It is inside (deep) to subdural space.
- Spinal cord ends at L_1 level as conus medullaris and subarachnoid space ends at S2 level. Thus subarachnoid space surrounds the conus medullaris completely.

79. True about umbilical cord ?

a) Cantains two umbilical veins

b) Cantains one umbilical artery

c) Right umbilical vein disappears

d) Length is 25-30 cm.

Correct Answer - C

Umbilical cord

Umbilical cord develops from connecting stalk, which extends from the caudal end of the embryo to the chorion.

Umbilical cord is covered by *amniotic epithelium* and contains a core of mesenchyme known as *whartan's jelly.*

Contents of umbilical cord are : (i) *Wharton's jelly,* (ii) Two umbilical arteries, (iii) One (left) umbilical vein, (iv)Remnant of yolk sac, and (v) Remnant of allanto-enteric diverticulum.

Initially 2 umbilical arteries and 2 umbilical veins develop in mesoderm, but right umbilical vein disappears. Left umbilical vein persists along with 2 umbilical arteries.

At full term, the umbilical cord measures 1-2cm in diameter, and 50-55cm in length and generally attached to the center of fetal surface of placenta.

80. 'Gut tube is developed from which germ layer

a) Ectoderm

b) Mesoderm

c) Endoderm

d) Neuroectoderm

Correct Answer - C
The gut is derived from the yolk sac, and hence is endodermal in origin.

81. Appendix of testis is derived from ?

a) Cranial end of mesonephric duct

b) Caudal end of mesonephric duct

c) Caudal end of paramesonephric duct

d) Caudal end of paramesonephric duct

Correct Answer - C
, Cranial end of paramesonephric duct

82. Structure developing from Mullerian duct in males?

a) Seminal vesicle

b) Epididymis

c) Prostatic utricle

d) Ureter

Correct Answer - C
Remnants of *Mullerian duct (paramesonephric duct)* in males are:-
i) Appendix of testis (Hydatid of Morgagni)
ii) Prostatic utricle.

83. Central nervous system develops from ?

a) Ectoderm

b) Endoderm

c) Mesoderm

d) All three germ layers

Correct Answer - A
Nervous system develops from ectoderm (neuroectoderm).

84. Ligament teres is a remnant of ?

a) Ductus arteriosus

b) Umbilical artery

c) Umbilical vein

d) Ductus venosus

Correct Answer - C
Umbilical vein

85. Diaphragm develops from all except:

a) Septum transversum

b) Dorsal mesocardium

c) Pleuroperitoneal membrane

d) Cervical myotomes

Correct Answer - B

B i.e. Dorsal mesocardium

- Diaphragm develops ***from* 4 *structures*** derived from **mesoderm** which unite to form a sheet.

1) Septum transversum :- Gives origin to sternal part and central tendinous region.

2) Pleuroperitoneal membrane :- Dorsal paired portion.

3) Dorsal mesentry of oesophagus :- Gives origin to crural part (Dorsal unpaired portion).

4) Lateral body walls (from cervical myotome) :- Gives origin to peripheral costal portion of diaphragm.

Mn - "ST PM DMO and CM = ST Prime Minister, District Medical Officer & Chief Minister"

86.

Septum transversum gives rise to which part of diaphragm ?

a) Right crus

b) Left crus

c) Central tendon

d) Peripheral costal portion

Correct Answer - C
Central tendon

87. Derivative of dorsal mesogastrium ?

a) Lesser omentum

b) Greater omentum

c) Falciform ligament

d) Triangular ligament

Correct Answer - B
Greater omentum

88. **Parathyroid gland develops from ?**

a) Branchial cyst

b) Branchial cleft

c) Branchial pouch

d) Branchial arch

Correct Answer - C

Parathyroid gland develops from 3rd and 4th branchial or pharyngeal pouches.
Superior parathyroid develop from the 4th pharyngeal pouch and inferior parathyroid develop from the 3rd pharyngeal pouch.

Ref: Langman's medical Embryology, 9th Edition, Page 384.

89. Reichert's cartilage derivative is ?

a) Malleus

b) Inchus

c) Stapes suprastructure

d) Sphenomandibular ligament

Correct Answer - C
The cartilage of second pharyngeal arch (hyoid arch) is known as *Reicherts cartilage* and contributes as :- (i) Stapes (except footplate), (ii) Styloid process, (iii) Stylohoid ligament, (iv) Lesser cornu and superior part of body of hyoid bone.
However, footplate of stapes develop from otic capsule.

90. All of the following are derrived from pharyngeal arches except:

a) Tensor Tympani

b) Palatine Tonsils

c) Mylohyoid

d) Tensor veli Palatini

Correct Answer - B

Ans. B i.e. Palatine Tonsils

- Tensor tympani, tensor veli palatine (i.e. palatine tensor) & mylohyoidQ develop from 1st (mandibular pharyngeal arch; orbicularis oculi & orbicularis oris develop from 2nd (hyoid)) pharyngeal or branchial arch. Whereas, levator palpebrae superioris is a somatic muscle that develops from prochordal mesenchyme
- Palatine tonsils and tonsillar fossa are derived from (2nd) pharyngeal pouch and not from pharyngeal arches

91. Pinna develops from:

a) 1st pharyngeal arch

b) 1st and 3rd pharyngeal arch

c) 1st and 2nd pharyngeal arch

d) 2nd pharyngeal arch

Correct Answer - C
Ans. C. 1st and 2nd pharyngeal arch

92. Development of the urinary bladder is from?

a) Urogenital Sinus

b) Paramesonephric Duct

c) Metanephric Blastema

d) Proctodaeum

Correct Answer - A
Ans. is 'a' i.e., Urogenital Sinus
[Ry' Inderbir Singfi Human Embryology Sth/e p. 246]

- The urinary bladder (except trigone) is derived from vesicourethral canal, cranial part of urogenital sinus (endodermal).
- Trigone is derived from absorbed part of Wolffian duct/mesonephric duct (mesodermal).

93. Ribs are developed from ?

a) Cloaca

b) Sclerotome

c) Endodermal cloaca

d) Primitive gut

Correct Answer - B

Ribs are derived from lateral cells of sclerotome.
Derivatives of paraxial mesoderm
Paraaxial mesoderm is organized into somites which in turn gives rise to
i) *Sclerotomes :* Form axial skeleton including vertebrae, *ribs* and parts of neurocranium.
ii) Myotomes : Form all voluntary (skeletal) muscles of head, trunk and limbs.
iii) *Dermatomes :* Form dermis of skin, especially over dorsal regions.

94. **Incudomalleolar joint is a;**

a) Saddle joint

b) Pivot joint

c) Gliding joint

d) Hinge joint

Correct Answer - A

The incudomalleolar joint is a saddle joint while the incudostapedial is a ball and socket joint.

Both of them are synovial joints covered by capsular ligament.

95. Gland of Moll are modification of which gland

a) Sebaceous gland

b) Holocrine gland

c) Sweat glands

d) None

Correct Answer - C
Sweat glands

96. The sigmoid nature of Hb-02 dissociation curve is because of

a) Binding of one 0_2 molecule increase the affinity for the next 02 molecule.

b) Alpha chain has more affinity for 0_2 than beta chain

c) Beta chain has more affinity for 0_2 than alpha chain

d) Haemoglobin in acidic in nature

Correct Answer - A
A i.e. Binding of one 0_2 molecule increase affinity for the next 0_2 molecule
Oxygen - hemoglobin dissociation curve is sigmoid (or S) shaped because *binding of one oxygen molecule to heme increases the affinity of second heme molecule for oxygenQ* an so on.
The relationship between partial pressure of 0_2 and the percentage saturation of hemoglobin with 0_2 can be explained graphically. And the graph is called 0,- hemoglobin dissociation Curve. It represents the affinity of hemoglobin for 02
Normal curve
S- shaped or sigmoid shapedQ due to interconversion of hemoglobin from *low affinity tightly bound Tense configuration (T state) to high affinity released configuration (R state)* as more 02 molecules are bound.
- Relaxed configuration exposes more oxygen binding sites & significantly increases 02 affinity.
- Combination of the first heme with 02 increase the affinity of second heme for 0_2 (due to TR interconversion) and oxygenation of

second increases the affinity of the third and so on.

* *P,0 - The partial pressure of 0_2 at which Hb saturation is* 50% Q. The normal value is 26.6 mmHg
* *Myoglobin has hyperbolic 0_2-binding curve.*

Bohr effect: The presence of CO_2 (4, pH) decreases the affinity of Hb for 02, this enhances further release of 0_2 to the tissue and the 0_2 dissociation curve is shifted to right. This is known as Bohr effect. *So decrease in 0_2 affinity of hemoglobin when pH of blood falls is called Bohr effectQ.* And it is caused by the fact that deoxygenated hemoglobin binds H+ more actively than does oxyhemoglobin.
All the factors, which shift the 0_2- dissociation curve to the right enhances the Bohr effect.
Binding of 0_2 to hemoglobin reduces its affinity for CO_2(2 or in other words CO_2 disociation curve shifts to right (i.e. blood begins to lose some CO_2 as it becomes oxygenated) is called Haldane - Christian - Douglas effect

97. Lymph flow is increased by all except

a) Increased vacular permeability

b) Decreased capillary omotic pressure

c) Increased in interstial fluid

d) Decreased interstial osmotic pressure

Correct Answer - D
Ans. is 'd' i.e., Decreased interstial osmotic pressure
The formation of lymph is very slow, and only 2-4 L of lymph are drained into the great veins every day. Lymph flow is increased by following factors : *?*
1) *Any factor that increase in interstial fluid (e.g., edema) :* - Any cause of increased interstial fluid, except for obstruction in lymphatics, will cause increase in lymph flow. For example, venous obstruction results in decreased absorption of fluid into the capillaries, which results in increased lymph formation and lymph flow. So, any condition which either increae the fluid extravasation from capillaries or decrease fluid reabsorption into the capillaries, increases the lymph flow.
i) Increased capillary hydrostatic pressure
ii) Decreased plasma osmotic pressure
iii) Increased interstitial fluid osmotic pressure
iv) Increased capillary permeability
v) Deep vein valve incompitance
vi) Venous stasis due to standing or venous obstruction.
2) Lymphatic pump/suction pump : - This has already been explained. This includes : *?*
i) Skeletal muscle contraction (skeletal muscle pump); (ii) Squeezing action of smooth muscle lining the larger lymphatics; (iii) Positive

intra-abdominal and negative intrathoracic pressure. Therefore, *compression of tissues by objects outside the body (e.g., massage of foot) increases lymph flow.*
3) Sympathetic autonomic nervous system stimulation through the action of catecholamines receptors increase rate of lymph flow.

98. PR interval in ECG denotes ?

a) Isovolumetric contraction of ventricle

b) Insovolumetric relaxation of heart

c) Atrial contraction

d) None

Correct Answer - C
Ans. is 'c' i.e., Atrial contraction
PR interval represents atrial depolarization (atrial contraction) and condution throught AV nude
Electrocardiogram
Normal ECG in a bipolar limb leads typically shows five waves named P, Q, R, S and T. Q, R and S waves are collectively called QRS complex.

99. Most powerful BP regulator in normal arterial pressure range ?

a) Baroreceptors

b) Carotid body (chemoreceptor)

c) CNS ischemia

d) All are same

Correct Answer - A

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

Baroreceptors are the main regulators when BP is between 70-150 mmHg.

Regulation of blood pressure

Blood pressure is regulated by following mechanisms.

A) Short term regulation

B) Long term regulation

A) Short term regulation

These mechanisms act immediately and correct the blood pressure quickly.

These are :-

i. *Baroreceptor reflex :* Works during BP range 70-150 mmHg.
i. *Chemoreceptor reflex :* Works when BP below 80 mmHg.
i. *CNS ischemic response :* This the only hope of survival when BP is below 40 mmHg.
*. *Hormonal release :* These are ?
*. *Antidiuretic hormone (ADH) :* Increases water reabsorption in kidney.
i. *Angiotensin II :* Causes vasoconstriction.

B) Long term regulation

- This is the mechanism which takes long time for regulation.

- This mechanism is present in kidneys.
- This mechanism adjusts the BP by adjusting valume of extracellular fluid and blood.
- These mechanism are -

i. *Pressure diuresis.*
i. *Pressure natreuresis.*
i. *Renin-angiotensin-aldosterone system.*

100. Central venous pressure is ?

a) Pressure in IVC

b) Pressure in SVC

c) Pressure in right atrium

d) Pressure in right ventricle

Correct Answer - C
Ans. is 'c' i.e., Pressure in right atrium
Central venous pressure (CVP) refers to pressure in right atrium because all the systemic veins open into right atrium.
Normal right atrial pressure (CVP) is *about 2 mm Hg.*

101. Powerful vasoconstrictor is?

a) Amphetamines

b) Epinephrine

c) Isopreenaline

d) Dobutamine

Correct Answer - B

Ans. is 'b' i.e., Epinephrine

- Among the given options, only epinephrine has significant action on a-receptor, thus causes vasoconstriction.

<u>Svmpathomimetic drugs</u>

- Non selective
- Adrenaline → a, + a, + 13, + [3,
- Noradrenaline→ a, + a, + [3, + Slight 13, no. 132
- Isoprenaline→ R + [3_2+ 13_3 but no a action
- Mephentramine→ a and 13

Selective

- a_l agonists → Phenylephrine, methoxamine, naphazoline, oxymetazoline, xylometazoline.
- a, agonists→ Clonidine, methyldopa, brimonidine, apraclonidine, guanfacine, guanabenz
- 13, agonists→ Prenalternol, dobutamine
- [3, agonsits → Salbutamol, terbutaline, salmeterol, orciprenaline, ritodrine, isotharine, bitolterol, pirbuterol, tenoterol, formoterol.

102. BP is measured in ?

a) Axillary artery

b) Carotid artery

c) Brachial artery

d) Radial artery

Correct Answer - C
Ans. is 'c' i.e., Brachial artery
The standard location for noninvasive blood pressure measurement is the brachial artery, although there are several other sites where it can be done.

103. 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)

104. In laminar flow, if diameter is reduced to half ?

a) Blood flow increases four fold

b) Blood flow decreases four fold

c) Blood flow increases sixteen-fold

d) Blood flow decreases sixteen-fold

Correct Answer - D
Ans. is 'd' i.e., Blood flow decreases sixteen-fold
If everything else remains constant, blood flow is direactly poroportional to 4^{th} power of radius.
Thus, if the diameter (or radius) is reduced to half, blood flow will decrease sixteen-fold.

105. Basic rhythm of respiration is maintained by ?

a) Pneumotaxic centre

b) Pre botzinger complex

c) Dorsal group of neurons

d) Ventral pons group of neurons

Correct Answer - B
Ans. is 'b' i.e., Pre-Botzinger complex

106. Damage to pneumotaxic center produces ?

a) Deep and fast respiration

b) Deep and slow respiration

c) Shallow and fast respiration

d) Shallow and slow respiration

Correct Answer - B

Ans. is 'b i.e., Deep and slow respiration

Respiratory effects of transection at different levels of brain

1) Transection above pons has no effect on respiration.

2) A *mid pontine transaction (Transection between upper and lower pons) or damage to pneumotaxic center.*

i. *When vagi are intact :-* The inhibitory effect of pneumotaxic center on apneustic center is abolished. However, inhibitory effect of vagus is intact. Therefore, the activity of apneustic center is increased a little bit which results in prolongation of inspiratory ramp. Thus , breathing *becomes deep and slow. But there is no change in rhythm.*

i. *With bilateral vagotomy :-* This eliminates the inhibitory influence of both pneumotaxic center and vagi on the apneustic center. The uninhibited effect of apneustic center results in *sustained gasping inspiration which is interrupted by brief inefficient expiration, i.e., Apneusis.*

3) Transection at pontomedullary junction :- Spontaneous respiration is maintained because the respiratory rhythm is generated in medulla which regulate the discharge of DRG and if required VRG. However, respiration is slight irregular and gasping.

4) Transection below the medulla :- Respiration is stopped

completely.
5) Bilateral vagotomy (without any brain lesion) :- Inhibitory effect of vagi on apneustic center is abolished; however, inhibitory effect of pneumotaxic center remains intact. Therefore, there is slight increase in activity of apneustic center. Thus breathing is *deep and slow.*

107. 2-3 DPG is decreased in ?

a) Anemia

b) Acidosis

c) High altitude

d) Exercise

Correct Answer - B
Ans. is 'b' i.e., Acidosis
Factors which decrease 2,3 DPG and cause left shift of O_2 dissociation curve are :-
i) Acidosis
ii) Stored blood
iii) Fetal hemoglobin

108. 2, 3 DPG causes ?

a) Decrease binding of O_2 and hemoglobin

b) Increased acidity in RBC

c) Decreased acidity in RBC

d) Lysis of RBC

Correct Answer - A
Ans. is 'a' i.e., Decrease binding of O_2 and hemoglobin
DPG is an optional by-product of the glycolytic pathway . DPG binds with deoxygenated hemoglobin but not with oxygenated hemoglobin . Therefore raised DPG concentration releases oxygen from oxyhemoglobin by shifting thefollowing reversible reaction to the right : -
HbO, + DPGHb - DPG + 02
One molecule of DPG binds with one mole of deoxyhemoglobin. That is why in the presence of raised DPG concentration, less oxygen can combine with hemoglobin at a given PO_2. Hence an increase in DPG concentration shifts the oxygen-hemoglobin dissociation curve to the right. Thus 2,3 DPG causes delivery (unloading) of O_2 to the tissues.

109. Hypercapnia is NOT seen in:
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a) Severe asthma

b) Anaphylaxis

c) Inhalational burn injury

d) ARDS

Correct Answer - D
Ans. D i.e. ARDS

110. Central Chemoreceptors are mot sensitive to following changes in blood:

a) $TPCO_2$

b) i,PCO_2

c) TH'

d) $TP0_2$

Correct Answer - A
A i.e. TPCO2

111. Medullary chemoreceptors are sensitive to ?

a) H^+ in CSF

b) CO2 in CSF

c) H^+ in blood

d) CO2 in blood

Correct Answer - A

Ans. is 'a' i.e., H^+ in CSF

The primary direct stimulus for central chemoreceptors is increased H^+ concentration in the CSF and brain interstitial fluid.

Central chemoreceptors

- These receptors are located in a chemosensitive area on the ventral surface of the medulla near the exit of the ninth and tenth cranial nerves. The primary stimulus for the central chemoreceptors is an increase in the hydrogen ion concentration. Stimulation of central chemoreceptors by increased hydrogen ion concentration leads to excitation of the respiratory neurons, thereby producing an increase in the rate and depth of respiration.
- Although the primary stimulus for central chemoreceptors is an increase in hydrogen ion concentration, in actual practice the physiological stimulus is an increase in PCO_2. The reason is that hydrogen ions cannot cross blood - brain barrier. Therefore, a change in the blood hydrogen ion concentration does not change the hydrogen ion concentration in the immediate vicinity of the chemosensitive neurons (i.e., in CSF and brain interstitial fluid). On the other hand, CO_2 being lipid soluble can easily cross blood brain barrier. It enters the brain, where it is hydrated to give rise to *fr* and

HCO_2- ions. Now these H' directly stimulate the central chemoreceptors.

- Thus, central chemoreceptors are directly stimulated by an increase in H^+ concentration in CSF and brain inerstitial tissue, which is brought about by change in arterial PCO_2 ($PaCO_2$).

112. Maximum air volme in the lung ?

a) 1200 ml

b) 2400 ml

c) 3000 ml

d) 5900 ml

Correct Answer - D
Ans. is 'd' i.e., 5900 ml.
Total lung capacity (TLC) : - It is the maximum volume of air in the lung at the end of maximal inspiration, i.e., maximum amount of air the lung can contain. In other words, TLC = TV + IRV + ERV + RV or TLC = VC + RV (because VC = TV + IRV + ERV). TLC is about 5900 ml.

113. Maximum CO_2 is seen in ?

a) Pulmonary vein

b) Pulmonary artery

c) Left ventricle

d) Left atrium

Correct Answer - B
Ans. is 'b' i.e., Pulmonary artery
Pulmonary arteries carry deoxygenated blood (with maximum CO_2) to lung from right ventricle.
In lung CO_2 is removed and oxygenation of blood takes place.
Pulmonary veins, then, transport this oxygenated blood (with less CO_2) to the left atrium.

114. Human cardiac muscle contains?

a) Alpha heavy chain of myosin

b) Beta heavy chain of myosin

c) Both alpha and beta heavy chains of myosin

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Both alpha and beta heavy chains of mysion
The myosin heavy chain in human cardiac muscle exist in two isoforms, a and f3, both of which are present in fetal heart.
a-form persists as the adult isoform in atrial muscle, whereas 0-form predominates in ventricular muscle.

115. Purkinje fibres are ?

a) Modified nerve fibres

b) Modified smooth muscle

c) Modified cardiac muscle

d) Fibrous tissue

Correct Answer - C

Ans. is 'c' i.e., Modified cardiac muscle

Conducting system of heart

The conducting system is made of specialized myocardium (cardiac muscle), that is capable for initation and conduction of cardiac impulse. It has following parts : ?

1) SA node :- SA node is located in the upper part of crista terminalis at the junction of SVC and the right atrium. It is the pacemaker of the heart and generates impulse at a rate of 70-100/min. SA node is sniffled by nodal artery, a branch of RCA in 65% cases and a branch of circumflex branch of LCA in 35% cases. SA node is supplied by right vagus/parasympathetic (inhibitory) and right Sympathetic (excitatory) system as it develops from structures on the right side of embryo.

2) AV node :- It lies in the right atrial floor near the interatrial septum in the 'triangle of koch'. It is supplied by AV nodal artery, a branch of RCA. AV node develops from left side of heart, thus is supplied by *left vagus and left sympathetic fibers.*

3) Atrioventricular bundle or bundle of His :- It arises from AV node and crosses the AV ring (annulus fibrosus).

In the muscular septum it divides into right and left branches. It has a dual blood supply from AV nodal artery (branch of RCA) and anterior descending (interventricular) branch of LCA.

4) Right bundle branch (RBB) and left bundle branch (LBB) :- These bundle branches consist of modifeid muscle fibers *(Purkinje fibers).* Both RBB and LBB are supplied by LCA, except a small part of the LBB which is supplied by RCA.

116. Hormone involved in regulation of BP ?

a) Serotonin

b) Angiotensin- II

c) Dopamine

d) Prostaglandin

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

117. Pain relief in acupuncture is mediated by ?

a) Endogenous opioids

b) Kinins

c) Substance P

d) PGs

Correct Answer - A
Ans. is 'a' i.e., Endogenous opioids
Question is straight and simple. Among the given options, only endogenous opioids are analgesic. Other three are pain producings substances.
"*The effects of acupuncture are mediated partly by the endogenous opioid system"*
Key concept in health phychology.
Needling during acupuncture activates high threshold receptors and/or their afferents (A-delta and C).
These generates segmental and extrasegmental modulation of nociceptive inputs.
The mechanisms of pain relief are :-
i) Activation of descending pain inhibitory pathways.
ii) Release of endogenous opioids.
iii) Positive feedback neural circuitry in the mesolimbic region of the brain.
Acupuncture also affects autonomic nervous system.

118. Function of cerebrocerebellum ?

a) Vestibulo-ocular reflex

b) Smoothening and coordination of movement

c) Planning of movements

d) Postural balance

Correct Answer - C
Ans. is 'c' i.e., Planning of movements
Functional divisions of cerebellum
From the functional point of view the cerebellum is divided into three parts : ?
1) Vestibulocerebellum (flocculonodular lobe)
This division contains flocculus, and nodulus, i.e., *flocculonodular lobe.* It receives afferent from the vestibular apparatus and sends efferents to the vestibular nuclei directly without projecting on deep nuclei. It works with vestibular apparatus to : -
i) Modulate muscular activity so as to achieve postural equilibrium or balance.
ii) Coordinate movements of the eyes with movements of head, i.e., vestibulo-ocular reflex .
2) Spinocerebellum
It consists of the vermis and the adjacent medial portion of cerebellar hemisphere. It receives proprioccptive information from the body as well as a copy of the "Motor plan" from the motor cortex. By comparing plan, it smoothens and coordinates movements that are ongoing.
3) Cerebrocerebellum (neocerebellum)
It is the large lateral portion of cerebellar hemisphere. They are the newest from a phylogenetic point of view and therefore also called neocerebellum. They interact with the motor cortex in planning and

neocerebellum. They interact with the motor cortex in planning and programming movements.

119. Function of floculonodular lobe of cerebellum ?

a) Postural balance

b) Smoothening of movement

c) Planning of movement

d) All of the above

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

120. Appetite is increased by ?

a) α-MHS

b) Leptin

c) Serotonin

d) Neuropeptide Y

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

121. True about Generatory potential ?

a) Not graded

b) Magnitude increased in direct proportion to strength of stimulus

c) All or none phenomenon

d) Propagated

Correct Answer - B
Ans. is 'b' i.e., Magnitude increased in direct proportion to strength of stimulus
Generator potential is a local potential which is :-
i) Graded → Magnitude directly related to the strength of stimulus.
ii) Decreased → Fade out after traveling a short distance.
iii) Non-propagated.

122. Processing of tactile stimulation occurs in Brodmann's area ?

a) 1,2,3

b) 4, 6

c) 44,45

d) 41,42

Correct Answer - A
Ans. is 'a' i.e., 1, 2, 3

- Processing of general sensory inputs primarily occurs in *primary somatosensory area of parietal* lobe.
- Primary somatosensory area is *Brodmann's areas 3, 1, 2.*

123. Purely depolorizing cells in optic pathway ?

a) Amacrine cells

b) Rods & cones

c) Bipolar cells

d) Horizontal cells

Correct Answer - A
Ans. is 'a' i.e., Amacrine cells
The responses of the rods, cones and horizontal cells are hyperpolarizing.
Bipolar cells may show either hyperpolarization or depolarization.
All these cells develop only graded local potentials, i.e., nonpropagated, decremental, does not follow all or none law. These cells do not develop action potential.
The only cell which develops propagated action potential is ganglion cells and the response is always depolarizing. Otherwise, they remains in inactive state.
Amacrine cells produce depolarizing potential and spikes.
Rods and cones release glutamate at their synapses with the bipolar cells.
Amacrine cells secrete at least eight types of transmitter substances, including GABA, glycine, dopamine, acetylcholine and indolamine, all of which normally function as inhibitory neurotransmitters.
The transmitters of the bipolar cells and horizontal cells are unclear.

124. All are true about reticular activating system except?

a) Involved in arousal

b) Polysynaptic pathway

c) Receives collateral from all sensory pathway

d) Produces α-block on EEG

Correct Answer - D
Ans. is 'd' i.e., Produces α-block on EEG
Reticular activating system (RAS) is the *ascending polysynaptic pathway* that extends from brainstem reticular formation to non-specific thalamic nuclei (intralarninar and midline nuclei) and projects diffusely to cerebral cortex.
Long sensory tracts give collateral to the RAS, as they ascend in brainstem. Thus RAS receives inputs from the medial and trigeminal leminisci as well as from the visual, auditory and olfactory systems. Therefore, the RAS is a non-specific system which *can be excited by any sensation.*
Activation of RAS causes activation of cerebral cortex and arousal from sleep.
On arousal from sleep, *the EEG pattern changes to high frequency low voltage activity (β - wave)* from high voltage slow waves (δ - waves) of sleep → δ-block (not α-block).

125. Auditory processing of spoken language is done by?

a) Parietal lobe

b) Temporal lobe

c) Occipital lobe

d) Frontal lobe

Correct Answer - B
Ans. is `b' i.e., Temporal lobe
The left temporal lobe holds the primary auditory cortex, which is important for the processing of semantics in both speech and vision.

126. Maximum equilibrium potential is for -

a) Na^+

b) K^+

c) Cl^-

d) None

Correct Answer - B
Ans. is 'b' i.e., K^+

127. True about decorticate rigidity?

a) Removal of cerebral cortex and basal ganglia

b) Flexion of lower limbs & extension of upper limbs

c) Rigidity is less pronounced than decerebrate rigidity

d) None of the above

Correct Answer - C
Ans:C. Rigidity is less pronounced than decerebrate rigidity.
Decorticate rigidity:

- Made by removing whole cerebral cortex but leaving basal ganglia intact.
- Characterized by flexion of upper extrimities at elbow & extension of lower extrimities.
  - Flexion due to rubrospinal tract excitation of flexors in upper extremities & hyperextension of lower extermity.
- Decorticate animal does not have intense hypertonia as decerebrate animal.
  - Due to intact basal ganglia in decorticate animal.

128. Receptor for inverse stretch reflex ?

a) Muscle spindle

b) Extrafusal fibers

c) Intrafusal fibers

d) Golgi tendon organ

Correct Answer - D

Ans. is 'd' i.e., Golgi tendon argan

Inverse stretch reflex (golgi tendon reflex)

- Golgi tendon reflex is a bisynaptic reflex, initiated by the Golgi tendon organ located in muscle tendons.
- This organ consists of a net-like (ramified) collection of knobby nerve endings among the fascicles of a tendon.
- There are 3-25 muscle fiber per golgi tendon organ.
- Golgi tendon organs are also stretch receptors.
- However, unlike the muscle spindle which acts as a length detecter, the Golgi-tendon organ acts as a muscle tension-detector.
- This difference in sensory function occurs because muscle spindle is located in parallel to the muscle fibers (extrafusal fibers) while the Golgi tendon organ is located in series to the muscle fibers (extrafusal fibers).
- Therefore, Golgi tendon organs are stimulated by both passive stretch and contraction of muscle (in contrast to muscle spindle which is stimulated by passive stretch but is inhibited by active contraction of muscle).
- *Stimuli for golgi tendon reflex are both passive strech and active contraction of muscle.*
- The golgi tendon organ is innervated by Aa sensory (afferent) fibers (type lb sensory).

- These afferent fibers terminate on *an inhibitory interneuron* in dorsal horn of grey matter in the spinal cord.
- These inhibitory interneuron terminates on the *a-motor neuron* (same a-motor neuron on which Ia (Aa) afferent of stretch reflex terminates) and has inhibitory effect on a-motor neuron.
- So, activation of Golgi tendon reflex results in relaxation of muscle.

129. Muscles have which efferent nerve fibers for regulating tone?

a) a-neuron

b) Gamma neuron

c) Beta neuron

d) Delta neuron

Correct Answer - B
Ans. is 'b' i.e., Gamma neuron
(Ref: Ganong 23'd/e p.158-162; Guyton 12n/e p. 657)

- Muscle tone is maintained by stretch reflex through muscle spindles (intrafusal fibers).

130. Tonic neck relfex is lost in lesion of -

a) Cerebral cortex

b) Midbrain

c) Medulla

d) Spinal cord

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

131. Neurotransmitter in subthalamic nuclei ?

a) Glutamate

b) GABA

c) Serotonin

d) Ach

Correct Answer - A
Ans. is 'a' i.e., Glutamate
Basal ganglia are richly connected with one another. These connections include :?
1) Dopaminergic nigrostriatal projection from the substantia nigra pars compacta (SNPC) to the striatum caudate nucleus and putamen) and *corresponding GABAergic projection from striatum to substantia nigra pars reticulata (SNPR).* Dopamine is the major neurotransmitter in substantia nigra.
2) The striatum has GABAergic projections to both globus pallidus inner segment (IS) as well as globus pallidus external segment (ES).
3) Globus pallidus ES has GABAergic projections to subthalamic nucleus and to globus pallidus IS.
4) Subthalamic nucleus has Glutamate-ergic *projections on both globus pallidus IS as well as globus pallidus ES.*
5) Cholinergic interneurons are there within the striatum.

132. Which one is excitatory ?

a) Putamen

b) Caudate nucleus

c) Striatum

d) Subthalamic nucleus

Correct Answer - D
Ans. is 'd' i.e., Subthalamic nucleus
Basal ganglia are richly connected with one another.
These connections include : ?
1) Dopaminergic nigrostriatal projection from the substantia nigra pars compacta (SNPC) to the striatum (caudate nucleus and putamen) and *corresponding GABAergic projection from striatum to substantia nigra pars reticulata (SNPR). Dopamine is the major neurotransmitter in Substantia nigra.*
2) The striatum has GABAergic projections (inhibitory) to both globus pallidus inner segment (IS) as well as globus pallidus external segment (ES).
3) Globus pallidus ES has GABAergic projections to Subthalamic nucleus and to Globus pallidus IS.
4) Subthalamic nucleus has glutamate-ergic (excitatory) projections on both globus pallidus IS as well as globus pallidus ES.
5) Cholinergic interneurons are there within the striatum.

133. 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.

134. Common precursor of mineralocorticoid, glucocorticoids and sex steroids ?

a) Pregnenolone

b) α-hydroxyprogesterone

c) Dehydrotestosterone

d) Deoxycortisol

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

135. Which hormone increases with age ?

a) GI

b) Prolactin

c) FSH

d) Insulin

Correct Answer - C
Ans. is 'c' i.e., FSH
Increasing age affects the hormonal secretion of body.

136. Hormone with no change in levels in menstrual cycle?

a) Activin

b) Inhibin

c) FSH

d) GnRH

Correct Answer - A

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

Hormonal regulation of the menstrual cycle

- Menstrual cycle involves the interplay of ovarian, pituitary and hypothalamic hormones.
- At the beginning of the cycle, the estrogen level is very low and progesterone level is negligible.
- Therefore, the pituitary and hypothalamus are free from the negative feedback effect of estrogen and progesterone.
- Hence the hypothalamus secretes GnRH and the anterior pituitary secretes FSH and some LH.
- FSH stimulates follicular development.
- Ovarian follicles secrete estrogen.
- Estrogen tends to suppress FSH secretion, but progressive follicular development ensures a rise in estrogen level.
- Around day 11 of the cycle, the estrogen level crosses a certain threshold.
- Above this threshold level. estrogen has a positive feedback effect on LH secretion, and to some extent also on FSH secretion.
- This leads to LH and FSH surge.
- The LH surge is essential for ovulation.
- After ovulation has taken place on day 14, the corpus luteum starts

developing under the influence of LH.

- Corpus luteum secretes estrogen, progesterone and inhibin.
- The combined effect of these hormones is to suppress the secretion of FSH and LH by negative feedback effect on the anterior pituitary, and to a lesser extent also on the hypothalamic GnRH secretion.
- Absence of support from FSH and LH leads to regression of the corpus luteum.
- Regression of the corpus luteum leads to a sharp decline in estrogen and progesterone levels.
- Withdrawal of support from estrogen and progesterone leads to menstrual bleeding.
- Thus one cycle ends and the next cycle begins.

137. Acrosome cap of sperm is derived from ?

a) Golgi body

b) Mitochondria

c) Nucleus

d) Centromere

Correct Answer - A
Ans. is 'a' i.e., Golgi body
Formation of acrosome starts with the coalescence of a series of granules from the Golgi complex, which migrates to come into contact with nuclear membrane, where it covers like a cap-like structure ove 30% to 50% of nuclear surface.
The acrosome covers the nucleus and contains the hydrolytic enzymes necessary for fertilization.
`*The head also contains the acrosome, which is a cap-like structure represented by golgi complex and covers about two thirds of anterior head area' Clinical reproductive medicine.*

138. Hyperthyroid state is characterized by ?

a) Increased protein synthesis

b) Decreased glycolysis

c) Lipolysis

d) Increased cholesterol

Correct Answer - C

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

In hyperthyroidism all effects of thyroid hormone are aggravated :-

i) Calorigenic effect :- Thyroid hormones enhance oxygen consumption, and hence the basal metabolic rate (BMR). This may be at least partly due to increase in the activity of membrane Nall(' ATPase. Thyroid hormones also increase the number and activity of mitochondria, which may be the cause or the effect of increase in oxygen consumption. By increasing the BMR, thyroid hormones *raise body temperature, loss of body weight and increase urinary nitrogen loss.*

ii) Growth and development :- Thyroid hormones are essential for normal growth and development.

iii) Carbohydrate metabolism :- Thyroid hormones have *both hypoglycemic and hyperglycemic effects.* The hypoglycemic effect is the *increased glycolysis.* The hyperglycemic effects are *stimulation of glycogenolysis and glucoconeogenesis.* The net effect is hyperglycemia and depletion of glycogen.

iv) Fat metabolism :- Thyroid hormone stimulates both lipogenesis and lipolysis. The lipolysis exceeds lipogenesis. Thus thyroid hormones moblize fat from adipose tissue, leading to an increase in plasma concentration of FFAs.

v) Protein metabolism : - Thyroid hormone has a protein anabolic effect but in large doses, it has a protein catabolic effect. Thus

effect but in large doses, it has a protein catabolic effect. Thus thyroid hormone increases both protein synthesis and protein degradation.

vi) Cardiovascular effects :- The thyroid hormones increase the heart rate, cardiac contractility, stroke volume and cardiac output, and consequently also the systolic BP. But the diastolic BP may fall due to vasodilatation in several vascular beds with decrease in peripheral vascular resistance. The cardiovascular effects of thyroid hormones are partly mediated by potentiation of effects of catecholamines.

vii) GIT :- Thyroid hormones increase GI secretion, absorption and motility.

viii) Nervous system :- Thyroid hormones are essential for normal formation of synapses and myelination in the developing brain.

ix) Respiratory system :- Thyroid hormones increase the rate and depth of respiration.

About option a & d

- In low concentration thyroid hormone increases protein synthesis, but in high concentration (as in hyperthyroidism) it is catabolic.
- Hyperthyroidism causes decrease in cholesterol due thyroxine induced increased LDL receptor synthesis in liver, and consequent increase in the removal of LDL from circulation.

139. Adrenal insufficiency in not associated with ?

a) Hyponatremia

b) Hyperkalemia

c) Hypoglycemia

d) Metabolic alkalosis

Correct Answer - D
Ans. is 'd' i.e., Metabolic alkalosis
Features of adrenal insufficiency (Addison's disease) are :-
i) Hypoglycemia
iv) Hyponatremia
ii) Hyperpigmentation
v) Hypotension
iii) Hyperkalemia
vi) *Metabolic acidosis*
Associated features are nausea, vomiting, diarrhea and abdominal cramps.

140. Major thyroxine binding protein ?

a) Albumin

b) Prealbumin

c) Globulin

d) Transferrin

Correct Answer - C
Ans. is 'c' i.e., Globulin
Most of the circulating thyroid, hormones are protein bound, leaving only 0.02% T_4 and about 0.2% T_3 unbound or free.

There are three hormone binding plasma proteins, i.e., thyroxine binding globulin (major thyroid hormone binding protein), thyroxine binding albumin and thyroxine binding prealbumin.
Thyroid binding globulin level is raised in pregnancy and by drugs estrogens, methadone, heroin, tranquilizers, clofibrate.
TBG decreases by glucocorticoid, androgen, danazol, asparginase (cancer chemotherapy) and nephrotic syndrome.

141. Lyedig cells secrete ?

a) Testosterone

b) Inhibin

c) Mullerian inhibiting substance (MIS)

d) ABP

Correct Answer - A
Ans. is 'a' i.e., Testosterone
The hormone-secreting cells in the testes are the leydig cells and sertoli cells. Leydig cells have receptors for LH and secrete all the androgens, i.e., testosterone (major androgen), dihydrotestosterone (DHT), androstendione and dehydroepiandrosterone (DHEA). All of theme have 19 carbon atoms.
Sertoli cells are under the control of FSH, i.e., have receptors for FSH. When stimulated by FSH, these cells secrete *androgen binding protein (ABP), in hibin* and MIS (mullerian inhibiting substance). Sertoli cells also contain aromatase; the enzyme that converts androgens to estrogens. Beside these hormonal function, junction between adjacent sertoli cells forms blood-testis barrier which does not allow harmful substances to enter the area where spermatogenesis is going on. *Sertoli cells also have receptors for androgens (testosterone) which stimulates spermatogenesis.*

142. Antimullerian hormone is secreted by ?

a) Granulosa cells

b) Lyedig cells

c) Sertoli cells

d) None

Correct Answer - C
Ans. is 'c' i.e., Sertoli cells
Antimullerian hormone or Mullerian inhibiting substance is secreted by sertoli cells.

143. In men LH controls secretion of ?

a) Inhibin

b) AMH

c) Testosterone

d) ABP

Correct Answer - C
Ans. is c i.e., Testosterone
Gonadotropins
Gonadotropins, as the name suggests, are tropic for gonads. The gonadotropins are FSH and LH.
Follicle stimulating hormone (FSH) stimulates follicular cells in female to promote the development of ovarian follicle and subsequent secretion of estrogen. In males, FSH stimulates the sertoli cells of the testis and thereby promotes spermatogenesis.
Leutinizing hormone (LH) stimulates the development of corpus luteum and the secretion of mainly progesterone and some estrogen by it. In males, LH stimulates the leyding cells (interstitial cells) to secrete testosterone. That is why LH is also called *interstitial cell stimulating hormone (ICSH).*

144. Which decreases secretion of both insulin and glucagon ?

a) Epinephrine

b) Somatostatin

c) Increased blood glucose

d) None

Correct Answer - B
Ans. is b i.e., Somatostatin
Somatostatin inhibits secretion of :?
i) GH and TSH
ii) Both insulin and glucagon
About other options

- Epinephrine stimulates glucagon secretion and inhibits insulin secretion.
- Increased blood glucose stimulates insulin secretion and inhibits glucagon secretion.

145. Development of spermatozoa (sperm) from spermatogonium takes how much time ?

a) 30-35 days

b) 40-45 days

c) 50-55 day

d) 70-75 days

Correct Answer - D
Ans. is 'd' i.e., 70-75 days

- Spermatogenesis refers to the process of *formation of spermatozoa (sperm) from primitive germ cells (spermatogonia).*
- Spermatogenesis begins at puberty and continues throughout adult life to decline in old age.
- In humans, *it takes an average of 74 days to form a mature sperm from primitive germ cells.*
- Spermatogenesis occurs in seminiferous tubules.

146. After first meiotic division, the primary oocyte remains arrested in ?

a) Diplotene stage

b) Pachytene stage

c) Metaphase

d) Telophase

Correct Answer - A

Ans. is 'a' i.e., Diplotene stage

- Oogenesis refers to the process of formation of ova from the primitive germ cells. Unlike fetal testis (in which spermatogenesis beings at puberty), the fetal ovary begins oogenesis by 10 weeks of gestation.
- **The sequence of events in oogenesis are :**

i. The primitive germ cells undergo mitotic divisions to form *oogonia (diploid cells). Oogonium is unique in that it is the only female cell in which both X' chromosomes are active.*

i. The oogonia proliferate by mitosis to form primary oocytes (diploid cells).

i. Primary oocytes formed from the oogonia enter a prolonged prophase (diplotene stage) of the first meiotic division and remain in this stage until ovulation occurs after puberty.

. Primary oocytes *completes the first meiotic division* at puberty just before ovulation to form secondary oocyte (haploid cell) and 1st polor body.

. Secondary oocyte immediately begins *second meiotic division* but this division stops at metaphase and is completed only if the mature ovum (ootid) is fertilized with sperm. At that time second polor body (polocyte) is extruded and the fertilized ovum proceeds to form a

new individual. *Fertilization normally occurs in the ampulla of fallopian tube.*

147. Amine hormone is ?

a) Insulin

b) Glucocorticoid

c) PTH

d) Thyroxine

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

148. Following pubertal change is not due to estrogen ?

a) Vaginal cornification

b) Pubic & axillary hair growth

c) Cervical mucus production

d) Menstruation

Correct Answer - D

Ans. is 'd' i.e., Menstruation

It is the lack of progesterone support (progesterone withdrawl) that causes mucosal shedding and bleeding during menstration.

Actions of estrogen

1. Sex organs

- Estrogen brings about pubertal changes in female .
- Growth of uterus, fallopian tube and vagina.
- Vaginal epithelium gets thickened, stratified and cornified.
- Estrogen induce watery cervical secretion.
- Proliferation of endometrium in preovulatory phase.
- Estrogen sensitizes the uterus to oxytocin.

2. Secondary sex character

- Estrogen produced at puberty causes growth of breast-proliferation of duct and stroma, accumulation of fat.
- Pubic and axillary hair appear.
- Feminine body contours and behaviour are influenced.
- Acne is common in girls at puberty → due to small amount of androgens produced simultaneously.

3. Metabolic effects

- Estrogens are anabolic
- Estrogens promotes fusion of epiphysis

- *Maintain bone mass by reducing bone resorption.*
- Promote *positive calcium balance* by inducing renal I a-hydroxylase.
- Cause salt and water retention.
- Estrogens decrease LDL while increase HDL and triglyceride → atherosclerosis is rare before menopause.
- Blood coagulability increases due to increased synthesis of factor II, VII, IX and X.
- Estrogens increase lithogenicity of bile by increasing cholestrol secretion and decreasing bile secretion.

149. False about estrogen action ?

a) Stimulates secondery sex characters in female

b) Stimulates osteoclasts

c) Decreases LDL

d) Increases blood coagulability

Correct Answer - B
Ans. is 'b' i.e., Stimulates osteoclasts
Major action of estrogen on bone is to *inhibit osteoclastic bone resorption.*
Estrogen blocks the action of IL-6, a potent stimulator of osteoclasts.
Estrogen also induces apoptosis of osteoclasts.
Other three options are correct.
Actions of estrogen have been explained in previous sessions.

150. Two cell two gonatotropin hypothesis is ?

a) FSH & LH inhibits the release of estrogen and progesterone

b) FSH acts on granulosa cell and LH on theca cells

c) FSH stimulates estrogen while LH inhibits estrogen

d) FSH feedback inhibits hypothalmus, while LH feadback inhibits pituitary

Correct Answer - B
Ans. is 'b' i.e., FSH acts on granulosa cell and LH on theca cells
The *"Two-cell, two-gonadotropin"* theory proposes that two cells (i.e. theca cells and granulosa cells) and the two gonadotropins (i.e. FSH and LH) stimulate estrogen synthesis.
i) FSH stimulate granulosa cells to secrete estrogen.
ii) LH helps indirectly in secretion of estrogen. LH stimulates theca interna cells to increase the synthesis of androgens which are taken up by granulosa cells and converted to estrogen by aromatase.

151. Primary spermatocytes, chromosome is ?

a) 23-X

b) 23-Y

c) 46-XY

d) None

Correct Answer - C
Ans. is 'c' i.e., 46-XY

152. In early phase division of spermatogonia by?

a) Meiosis

b) Mitosis

c) Both Meiosis & Mitosis

d) Maturation

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

153. C- peptide is secreted by ?

a) A cells

b) B cells

c) D cells

d) F cells

Correct Answer - B
Ans. is 'b' i.e., B cells
Insulin is a polypeptide hormone which is synthesized as a larger preprohormone (preproinsulin).
Asthepreprohormone enters the endoplasmic reticulum, 23 amino-acid signal peptide is removed and it is converted to prohormone (proinsulin).
Proinsulin is made up A and B chain connected by a connecting peptide (C-peptide or C-chain).
C-peptide is detached in the granules before secretion. Normally, 90-97% of the product released from B cells is insulin along with equimolar amounts of C-peptide.
Insulin is a *two chain polypeptide having 51 aminoacids :* The A chain has 21 while B-chain has 30-aminoacids.
Half life of insulin is about 5 minutes.

154. Gastric emptying is delayed by ?

a) Distension of stomach

b) Gastrin

c) Acid in duodenum

d) Vagal stimulation

Correct Answer - C
Ans. is 'c' i.e., Acid in duodenum
<u>Gastric emptying</u>
The rate at which the stomach empties into the duodenum depends on the quantity and the type of food ingested. Distension of stomach triggers long (vagally mediated) and short (intrinsic neural plexus mediated) reflexes leading to strong peristaltic waves and increased gastric emptying. The local hormone gastrin also increases the rate of gastric emptying .
Certain signals from the duodenum have a more important regulatory control over the gastric emptying. Distension of the duodenum; Hyperosmolarity in the duodenum (hyperosmolar chyme) ; and presence of acid, fatsand products of protein digestion in duodenum decrease gastric emptying by : -
i) Hormonal mechanism :- Release of several intestinal hormones like secretin, cholecystokinin, VIP, GIP inhibit gastrin emptying, but also gastric acid secretion.
ii) Enterogastric reflex : - Inhibit gastric emptying through the intrinsic enteric neural plexus.
The rate at which the stomach empties into the duodenum depends on the type of food ingested. Food rich in carbohydrate leaves the stomach in a few hours. Protein rich food leaves more slowly, and emptying is slowest after a meal containing fat.

155. Pancreatic lipase that digests lipids requires ?

a) Vit B 12

b) Pyridoxine

c) Tocopherol

d) Colipase

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

- Lipase requires colipase which prevents inactivation of lipase by bile salts.
- For fat digestion, following are required :- *Pancreatic lipase, colipase, bile-salts* activated lipase, cholesterol ester hydrolase, and phospholipase A2. Trypsin is also involved indirectly as it activates inactive procolipase to active colipase.
- Lingual lipase and gastric lipase are of very little significance in fat digestion.
- Bile salts help in fat digestion by : (i) Emulsification of fat and (ii) activating bile salt activated lipase.

156. Hepcidin inhibits ?

a) Absorption of cobalamine

b) Transfer of iron into enterocytes

c) Folic acid synthes

d) Respiratory oxidase

Correct Answer - B
Ans. is 'b' i.e., Transfer of iron into enterocytes
Hepcidin is iron *metabolism regulatory hormone* that inhibits iron absorption (transfer of iron into enterocytes).

157. Parietal peritonium is lined by ?

a) Simple squamous

b) Stratified squamous

c) Cuboidal

d) Columnar

Correct Answer - A
A i.e. Simple squamous

- Transitional epithelium is a multilayered (4 - 6) stretchable epithelium, which has *extra reserve of cell layers* i.e. as tension increases the epithelial sheet is expanded *&* number of observable cell layers decrease *&* cell shape change from cuboid to squamous.
- The deepest layer of transitional epithelium is *columnar or cuboidal;* middle layer is *polyhedral or pear shaped &* surface layer is *umbrella shaped.*
- It differs from stratified squamous epithelium in that the cells at surface are not squamous.
- *Membranous and most of penile urethra* (in males) is lined by pseudostratified or *stratified columnar epithelium*

Ansa nephroni (renal loop of Henle) and mesothelium (i.e. serous/outer/parietal layer of peritoneum, pericardium **&** pleura) is lined by *simple squamous epitheliumQ* and distal convulated tubule (DCT) is lined by *simple cuboidal epithelium without brush borderQ*

158. Which of the following is involved in peristalsis by causing relaxation ?

a) Substance P

b) Acetylcholine

c) VIP

d) Norepinephrine

Correct Answer - C

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

In peristlasis :-

i. *Acetylcholine & substance P* → Causing smooth muscle contraction.

i. *VIP, NO & ATP* → Producing relaxation ahead of stimulus.

159. In peristalsis following are involved except ?

a) NO

b) Substance P

c) Noradrenaline

d) VIP

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

- Peristalsis requires an active myenteric (Auerbach's) plexus.
- Local stretch by chyme releases serotonin, which activates myenteric plexus.
- Cholinergic neurons of this plexus passing in a retrograde direction release substance P and acetylcholine, causing smooth muscle contraction.
- Cholinergic neurons passing in an antegrade direction activate neurons that secrete NO, VIP, and ATP, produing relaxation ahead of the stimulus.

160. In a 55 year old anion gap needs to be calculated. The anion gap is calculated as:

a) $[K^+]$ + [HCO3 + Cr]

b) [Na + [a- + HCO3-]

c) Na^+ - $[HCO_3^- + Cl^-]$

d) [Mg] + $[HCO_3$- + Cl-]

Correct Answer - C

Na^+ -($HCO_3^- + Cl^-$)

161. Urine flow rate is 10 ml/min, plasma inulin is 2 mg/ ml and urine inulin is 25 mg/ml. Which of the following statement is true ?

a) Inulin clearance = GFR

b) Inulin clearance > GFR

c) Inulin clearance > GFR

d) GFR cannot be calculated by above data

Correct Answer - A
Ans. is 'a' i.e., Inulin clearance = GFR
Measurement of GFR

- If a substance is designated by letter 'X', the GFR is equal to the concentration of 'X' in urine (Ux) times the urine flow per unit time (v) divided by arterial plasma level of X (Px).

162. With increased flow to loop of Henle, decreased in GFR is by ?

a) Countercurrent exchanger

b) Glomerulotubular balance

c) Tubulo-glomerular feedback

d) Countercurrent multiplier

Correct Answer - C

Ans. is 'c' i.e., Tubulo-glomerular feedback

Autoregulation of GFR

- The GFR is normally well autoregulated in the range of 70-180 mm Hg of systemic pressure. Feedback mechanisms intrinsic to the kidney normally keep the renal blood flow and GFR relatively constant, despite marked changes in arterial blood pressure. The relative constancy of GFR and renal blood flow is referred to as *autoregulation.* The primary function of autoregulation in other tissues (other than kidneys) is to maintain the delivery of oxygen and nutrient at a normal level and to remove the waste products of metabolism, despite changes in arterial pressure. In the kidneys, the non-nal blood flow is much higher than that required for these functions. the major function of autoregulation in the kidney is to maintain a relatively constant GFR and to allow precise control of renal excretion of water and solutes.
- There are two plausible hypotheses for explaining the autoregulation of GFR (i) *Tubuloglomerular feedback hypothesis,* and (ii) *Myogenic hypothesis.*

Tubulo-glomerular feedback

- To perform the function of autoregulation, the kidneys have a feedback mechanism that *links changes in sodium chloride*

concentration at the macula densa with the control of renal arteriolar resistance. This feedback helps to ensure a relative constant delivery of sodium chloride to the distal tubule and helps prevent spurious fluctuations in renal excretion that would otherwise occur.

- The tubuloglomerular feedback mechanism has two components that act together to control GFR : - i) An *afferent arteriolar feedback mechanism* (usually this component is referred to as tubuloglomerular feedback, and ii) *An efferent arteriolar feedback mechanism.* These feedback mechanisms depend on the juxtaglomerular *apparatus* which consists of : (i) Macula densa, i.e., specialized epithelium of distal tubule where it comes in contact with afferent arteriole, (ii) *Juxtaglomerular cells, i.e.,* modified smooth muscle cells of afferent arteriole, and iii) *Lacis cells.*

i. Afferent arteriolar feedback mechanism : - Decrease in renal arteriolar pressure causes decrease in GFR and as a result low NaCI is delivered to distal tubules. This is sensed by macula densa and the signal is transmitted to afferent arterioles which causes *decreased resistance of afferent arterioles.* Decreased afferent arteriolar resistance increases glomerular hydrostatic pressure and therefore GFR. The transmitter involves is adenosine which causes opening of Ca^{*2} channels.

i. Efferent arteriolar feedback mechanism : - Decreases GFR causes delivery of less NaCl to distal tubule, which is sensed by macula densa cells and the signal is transmitted to *juxtaglomerular (JG) cells which secrete renin.* As a result renin angiotensin system is activated and there is generation of angiotensin II which causes constriction of efferent arteriole. This results in increased glomerular capillary hydrostatic pressure and increased GFR.

- Opposite occurs when there is increase arterial pressure and increased GFR. Increased NaCl is delivered to the macula densa which causes constriction of afferent arteriole and decrease,: renin by JG cells with decreased efferent arteriole resistance.
- It would be wise to know about glomerulotubular balance, which may be confused by tubuloglomerular feedback.
- Glomerulotubular balance : - Tubular reabsorption in proximal tubules is load-dependent, i.e., when the GFR increase, the reabsorption of the filtrate in the proximal tubule increases

proportionately. It occurs because tubular reabsorption is flow-limited. Because of glomerulotubular balance, the urinary Na+ output does not increase massively when the GFR increases.

Myogenic Autoregulation

- Afferent arterioles constrict in response to augmented blood pressure. Arteriolar constriction restores GFR to normal levels. Possibly, stretching of arterioles leads to the opening of stretch - sensitive Ca^{+2} channels on arteriolar smooth muscle cells resulting in a Ca^{+} influx that causes the cells to contract.

163. Affect of sympathetic stimulation on GFR ?

a) Increased GFR with afferent arteriolar dilatation

b) Increased GFR with efferent arteriolar constriction

c) Decreased GFR with afferent arteriolar constriction

d) Decreased GFR with efferent arteriolar dilatation

Correct Answer - C

Ans. is 'c' i.e., Decreased GFR with afferent arteriolar constriction

Sympathetic stimulation causes afferent arteriolar constriction with decrease in RBF and GFR.

Effect of sympathetic discharge on the renal regulation of body fluid and electrolytes

Sympathetic discharge on the kidney results in :-

- Decreased GRF.
- Increased reabsorption of Na^+ and water from the PCT.
- Increased reabsorption of Na^+ and water from the DCT.
- Thirst (due to angiotensin II production).
- The overall effect is fluid and electrolyte retention due to :-
- Decreased urinary output.
- Decreased urinary Na' excretion.
- Increased water intake.

164. Preaccelerin is ?

a) Eater II

b) Facter V

c) Facter VII

d) Facter X

Correct Answer - C
Ans. is 'c' i.e., Facter VII

165. Major protein of bone is ?

a) Osteocalcin

b) Osteopontin

c) Collagen type- 1

d) Collagen type- 4

Correct Answer - C
Ans. is 'c' i.e., Collagen type-1
Bone is a specialized *connective tissue.*
Bone components are :?
1) Inorganic elements (65%)
2) Organic matrix (35%)
1)Inorganic elements

- It is the mineral phase, principally composed of calcium and phosphate, mostly in the form of hydroxyapatite [Ca_{10} $(PO_4)_6$ (OH)2].

2)Organic maxtix

- Organic matrix consists of cells of bones and protein of matrix. This unminerilized matrix is called osteoid, i.e. *unminerilized bone is known as oteoid.* Osteoid with mineral (i.e. mineralized osteoid) is complete bone.

A) Protein of matrix
It is mainly formed by *type I collagen* and a family of noncollagenous proteins like osteocalcin and osteonectin that are derived mainly from osteoblasts.
B) Cells of matrix
The cells of bone are :-
i) Osteoblasts
ii) Osteoclasts

iii) Osteocytes

166. ABO antigens are not present in ?

a) Saliva

b) CSF

c) Blood

d) Tear

Correct Answer - B
Ans. is 'b' i.e., CSF
"Soluble ABO antigens are detected in secretions and all body fluids except cerebrospinal fluid".

167. Longest life span among following ?

a) RBC

b) Plalalets

c) Neutrophils

d) Macrophages

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

168. Each hemoglobin molecule contains how many globin?

a) 1

b) 2

c) 3

d) 4

Correct Answer - A
Ans. is 'a' i.e., 1
Hemoglobin is the most important red cell constituent.
The hemoglobin molecule is an assembly *of four* globular protein.
Each subunit is composed of a protein (polypeptide) part, i.e., *globin* and a nonprotein part i.e., *heme, i.e.,* Each hemoglobin molecule contains four heme units and two pairs of similar protein, globin.
The heme part of globular protein is same in all types of hemoglobin.
The protein part vary in different hemoglobin : ?

1. Adult hemoglobin (Hemoglobin A) consist of two identical a-chains and two identical n-chains.
2. Fetal hemoglobin (H bF) consists of two identical a-chains and two identical y chains.
3. Minor hemoglobin (HbA_2) consist of two identical a-chains and two identical 8 chains.

Each hemoglobin molecule consists of globin *(4 polypeptide chains) and 4 heme molecules.*

169. True about body fluid osmolarity ?

a) Major contributor is proteins

b) Major contributor is Na^+

c) ECF osmolarity is 250 mOsm/L

d) Measured by dilution method

Correct Answer - B
Ans. is 'b' i.e., Major contributor is Na^+

170. Active tension in a muscle depends upon ?

a) Number of muscle fibres

b) Number of motor units recruited

c) Aerobic capacity of muscle

d) Length of muscle fiber

Correct Answer - B
Ans. is 'b' i.e., Number of motor units recruited
A motor neuron (nerve fiber) with all its peripheral branches and muscle fibers innervated by it is called motor unit. The motor-unit obey all or none law, i.e., when the nerve fiber (neuron) of the motor unit is stimulated, all the fibers of motor unit will either contract maximally or not contract at all, depending upon whether the stimulus is of threshold or subthreshold intensity. *Since the unit of activation is nerve fiber, the unit of contraction is a motor unit. Muscles which are concerned with fine graded and precise movement (e.g., fingers and eye ball) have only 3-6 fibers in a motor unit.* On the other hand, muscles for gross movements (e.g., leg) contain 600-1000 muscle fibers per unit.

If an isolated muscle is stimulated the contractile response depends on the strength of stimulus. The dependence of the strength of contractile response on the strength of stimulus seem at first to violate the all or none followed by excitable tissue. But in fact skeletal muscle also follows all or none low at cellular level, i.e., at motor unit level (read above : motor unit). Each motor unit will either contracts with full force or not at all. But the number of motor units contracting can be altered. The larger the number of motor units

which contract, stronger is the contraction of muscle (whole muslce). So, with increasing strength of stimulus, it is the number of contracting motor units which increases and resulting in increased strength of contraction.

171. Regulation of enzyme activity by covalent modification is seen in all except ?

a) Glycogen synthase

b) Glycogen phosphorylase

c) Aspartate transcarboxylase

d) HMG CoA reductase

Correct Answer - C

Ans. is 'c' i.e., Aspartate transcarboxylase

Covalent modification

- The enzymes regulated by covalent modification can exist in two forms.
- The two forms of enzyme can be converted into each other by a covalent modification of the enzyme molecule.
- *The most common covalent modification is the addition or removal of a phosphate group.*
- The covalent attachment of phosphate group converts the enzyme into phophorylated form whereas removal of phosphate group converts the same enzyme into dephosphorylated form.
- One of the forms of the enzyme, either phosphorylated or dephosphorylated, is active and the other is inactive.
- Phosphorylation of the enzyme is catalyzed by a *protein kinase* that transfers a phosphate group from ATP to the enzymes.
- Dephosphorylation of the enzyme is catalyzed by a protein phosphatase that removes the phosphate group from the enzyme.
- Whether the enzyme will be active or inactive at a given time depends upon the relative activities of protein kinase and protein

phosphatase which are usually controlled by hormones through second messengers.

- An example is *glycogen synthase,* which is active in dephosphorylated state and inactive in phosphorylate state.
- Glucagon stimulates formation of cAMP (a second messenger) which inturn stimulates protein kinase.
- Protein kinase catalyze the phosphorylation of glycogen synthase.
- Therefore, glucagon inactivate glycogen synthase.

172. Enzyme which is not regulated by phosphorylation dephosphorylation ?

a) Glycogen synthase

b) Glycogen phosphorylase

c) Aspartate transcarboxylase

d) HMG CoA reductase

Correct Answer - C
Ans. is 'c' i.e., Aspartate transcarboxylase

173. Allosteric inhibition of an enzyme is ?

a) Binding of inhibitor to catalytic site and inhibition of enzyme

b) Binding of inhibitor to other site and inhibition of enzyme

c) Inhibition of enzyme by inhibitors without binding to enzyme

d) Inactivation by phosphorylation or dephosphorylation

Correct Answer - B

Ans. is 'b' i.e., Binding of inhibitor to other site and inhibition of enzyme

- Some enzymes, called allosteric enzymes, posses a site, in addition to substrate binding (catalytic) site, known as the allosteric site.
- Binding of *allosteric modulator* at the allosteric site affects the conformation of catalytic site.
- Such enzymes are called *allosteric enzymes.*
- The allosteric modulator (regulator) may facilitate the conformational change of catalytic site, required for substrate binding.
- Such regulators are called *allosteric activators (positive allosteric modifier);* for example, fructose-2, 6-bisphosphate is an allosteric activator of Phosphofructokinase-I.
- Some allosteric regulators prevent the conformational change required for binding of the substrate.
- Such regulators are called *allosteric inhibitors (negative allosteric modifier);* for example, citrate is an allosteric inhibitor of phosphoructokinase-I.

174. Action of physiological uncoupler ?

a) Inhibition of both ATP synthesis and ETC

b) Inhibition of ATP synthesis only not ETC

c) Inhibition of only ETC not ATP synthesis

d) None of the above

Correct Answer - B
Ans. is 'b' i.e., Inhibition of ATP synthesis only not ETC
As the name suggests, these componds block the coupeling of oxidation with phosphorylation.
These compounds allow the transfer of reducing equivalents in respiratory chain but prevent the phosphorylation of ADP to ATP by uncoupling the linkage between ETC and phosphorylation.
Thus the energy instead of being trapped by phosphorylation is dissipated as heat. Uncouplers may be *:?*
i) Natural :- Thermogenin, thyroxine
ii) Synthetic :- 2, 4-dinitrophenol (2, 4-DNP), 2, 4-dinitrocresol (2, 4-DNC), and CCCP (chlorocarbonylcyanidephenyl hydrazone).

175. Cytochrome P450 is name derived from ?

a) Molecular weight 450D

b) Produced by 450 genes

c) Absorbs light at 450 nanometres

d) Have 450 isoforms

Correct Answer - C
Ans. is 'c' i.e., Absorbs light at 450 nanometres

- Cytochrome P450 got its name because it strongly absorbs light at 450 nanometres, which is blue is visible spectrum.

176. Not a substrate for gluconeogenesis -

a) Glycerol

b) Leucine

c) Lactate

d) Propionate

Correct Answer - B
Ans. is 'b' i.e., Leucine
Substrates for gluconeognesis *?*
i. *Lactate*
i. *All amino acids except leucine and lysine*
i. Pyruvate
*. *Propionate*
*. *Glycerol*
i. Intermediates of citric acid cycle
Alanine is the most important gluconeogenic amino acid.

177. Most popular acceptable theory for oxidative phosphorylation is ?

a) Semiconservative

b) Chemical coupling

c) Chemiosmotic theory

d) Physical coupling

Correct Answer - C
Ans. is 'c' i.e., Chemiosmotic theory
The *chemiosmotic coupling hypothesis* is the most accepted theory which explains the mechanism of oxidative phosphorylation.
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.

178. Citrate to cis-aconitate conversion is inhibited by?

a) Malonate

b) Fluoride

c) Arsenite

d) Fluoroacetate

Correct Answer - D
Ans. is 'd' i.e., Fluoroacetate
Conversion of citrate to cis-aconitate is a step of Kreb's cycle, catalyzed by Aconitase.
Aconitase is inhibited by fluoroacetate.

179. Which of the following is a non-reducing sugar ?

a) Glucose

b) Lactose

c) Maltose

d) Sucrose

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

180. Pyruvate dehydrogenase is inhibited allosterically by ?

a) AMP

b) Pyruvate

c) NADH

d) `Insulin

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

181. Per TCA with 3 NADH and 1 FADH2, generates how many ATP?

a) 6

b) 9

c) 12

d) 15

Correct Answer - B
Ans. is 'b' i.e., 9
One NADH produces 2.5 ATP and one FADH2 produces 1.5 ATP.
Thus 3 NADH and 1 FADH2 will produce 9 ATP.
There is production of ATP at substrate level also, Thus total 10 ATP molecules are produced per cycle.

182. What can be prevented by inhibiting aldose reductase in diabetes mellitus ?

a) Deafness

b) Diabetic nephropathy

c) Diabetic neuropathy

d) Diabetic cataract

Correct Answer - D
Ans. is 'd' i.e., Diabetic cataract
When there is excessive glucose, e.g., in diabetes, it is converted to sorbitol by aldose reductose. Sorbitol is responsible for accumulates in the lens and causes diabetic cataract.

183. Which of the following glycolytic enzyme does not catalyze irreversible step ?

a) Hexokinase

b) Phosphoglycerate kinase

c) Phosphofructokinase

d) Pyruvate kinase

Correct Answer - B
Ans. is 'b' i.e., Phosphoglycerate kinase
Irreversible steps are catalyzed by :- Glucokinase / Hexokinase, phosphofructokinase-I, and pyruvate kinase.
Reversible steps are catalyzed by :- Phosphohexose isomerase, aldolase, phosphotriose isomerase, glyceraldehyde 3-phosphate dehydrogenase, phosphoglycerate kinase, phosphoglycerate mutase, Enolase.

184. Key enzyme in glycogenolysis ?

a) Branching enzyme

b) Glycogen synthase

c) Debranching enzyme

d) Glycogen phosphorylase

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

185. An infant presents with hepatosplenomegaly, hypoglycemia, hyperuricemia and lactic acidosis. Liver biopsy shows normal structured glycogen deposition. Enzyme deficient in this infant is ?

a) Debranching enzyme

b) Branching enzyme

c) Glucose-6-phosphatase

d) Muscle phosphorylase

Correct Answer - C

Ans. is 'c' i.e., Glucose-6-phosphatase

The infant is presenting with features of liver glycogenosis, i.e. glycogen storage disease which primarily affects liver.

Among the given options a, b and c are liver glycogenoses. but normal glycogen structure rules out a and b options.

i. Debranching enzyme deficiency (Type III glycogenosis) and branching enzyme deficiency (type IV glycogenosis) have depostion of abnormal glycogen.

i. Glucose-6-phosphatase deficiency (type I glycogenosis) has deposition of normal glycogen.

186. 1st response to hypoglycemia ?

a) Decreased insulin

b) Increased glucagon

c) Increased cortisol

d) Increased norepinephrinea

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

187. Uronic acid pathway is important for the formation of?

a) GAG (glycosamine glycans)

b) Glycoproteins

c) Conjugation of bilirubin

d) All of the above

Correct Answer - D

UDP-glucuronate (a product of uronic acid pathway) is a donar of glucuronate residue for various conjugation and synthetic processes.

188. Alcohol causes hypoglycemia due to ?

a) Decreased gluconeogenesis

b) Decreased NADH

c) Decreased lipogenesis

d) Decreased glycogenesis

Correct Answer - A
Ans. is 'a' i.e., Decreased gluconeogenesis
Excess intake of alcohol leads to excessive production of NADH with a concomitant decrease in NAD+.
This causes following metabolic alterations :-
i) The increase availability of NADH favours the reduction of pyruvate to lactate and oxaloacetate to malate and decreasing its availability for gluconeogenesis and decrease synthesis of glucose. This results in Hypoglycemia.
ii) Increased ratio of NADH/Nad^{+} inhibits p-oxidation of fatty acids and citric acid cycle and promotes lipogenesis, triacylglycerol synthesis and cholesterol synthesis from acetyl CoA.
iii) Increased lactic acid production causes lactic acidosis and hyperuricemia.
iv) Accumulation of lipid in various tissues causes fatty liver, fatty myocardium etc.

189. Two carbon atoms leave in the form of CO_2 in TCA cycle are derived from ?

a) Oxaloacetate

b) Acetyl CoA

c) Succinyl CoA

d) fumerate

Correct Answer - B
Ans. is 'b' i.e., Acetyl CoA
TCA cycle consists of sequential reactions. It begins with condensation of four carbon oxaloacetate molecule with 2 carbon acetyl CoA molecule to form six carbon citrate molecule. In subsequent reaction two carbon atoms are lost in the form of CO_2 at two different reactions. A series of modifications occur in the remaining four carbon atoms to ultimately form oxaloacetate. Thus the last substrate (oxaloacetate) of one cycle is ready for use as a substrate in the next cycle. In this way, *there is no net generation of OAA, or of any of the cycle intermediates.*
So, two carbon atoms enter the cycle as acetyl CoA (and condense with oxaloacetate) and two carbons leave in the form of two molecules of CO_2. Thus, TCA cycle basically involves oxidation of acetyl CoA to CO_2 and as such *there is no net consumption or regeneration of oxaloacetate or any of the other cycle intermediates.*

190. Uronic acid pathway does not have role in formation of which glycosaminoglycan proteoglycan?

a) Keratan sulfate

b) Chondroitin sulphate

c) Hyaluronic acid

d) Heparan sulphate

Correct Answer - A

Glycosaminoglycans are *heteropolysaccharide* (heteropolysaccharides are polysaccharides which contain two or more different monosaccharide unit or their derivates).
Glycosaminoglycans are linear (unbranched) polysaccharides, with *repeating diasaccharide units.*
Each disaccharide unit consists of an *amino sugar* and *an acid sugar (sugar acid).*

191. Glucogenic amino acid is transported to the liver most commonly by

a) Alanine

b) Glycine

c) Lysine

d) Leucine

Correct Answer - A
Ans. A. Alanine

192. Rate limiting step in HMP shunt ?

a) Glucose-6-phosphate → 6-phosphogluconolactone

b) 6-phosphogluconolactone → 6-phosphogluconate

c) 6-phosphogluconate → Ribulose-5-phosphate

d) Ribulose-5-phosphate → Xylulose-5-phosphate

Correct Answer - A
Ans. A. Glucose-6-phosphate → 6-phosphogluconolactone

193. Isomer differences of position of -H and -OH at 2'', 3', and 4' carbon atom of glucose are called?

a) Optical isomers

b) Epimers

c) Anomers

d) D,L isomers

Correct Answer - B

Ans. is 'b' i.e., Epimers ***[Ref Harper 29thie p. 133-135]***

- Isomers differing as a result of variations in configuration of the -OH and -H on carbon atoms 2, 3, and 4 of glucose are known as epimers.
- Biologically, the most important epimers of glucose are mannose and galactose, formed by epimerization at carbons 2 and 4, respectively

194. Glutathione is maintained in reduced state by the help of ?

a) HMP shunt

b) Glycogenesis

c) Uronic acid pathway

d) Transamination

Correct Answer - A
Ans. is 'a' i.e., HMP shunt
Oxidized glutathione is reduced by the help of NADPH, which is generated by NADPH.

195. Role of selenocystein is important in ?

a) Hydroxylation of dopamine

b) Oxidation of drugs

c) Antioxidant mechanism

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Antioxidant mechanism

196. Homocystein is not associated with ?

a) Coronary artery disease

b) Fracture

c) Hearing loss

d) Neuropsychiatric manifestations

Correct Answer - C

Ans. is 'c' i.e., Hearing loss

Elevated level of homocysteine (hyperhomocysteinemia) is associated with -

- Thrombosis, coronary artery disease & stroke.
- Osteoporosis & fracture.
- Neuropsychiatric manifestations.
- Developmental delay.
- Visual disturbances.

197. Which Branched chain amino acid is ketogenic?

a) Lycine

b) Leucine

c) Isoleucine

d) b and c both

Correct Answer - D
Ans. is `b > c' i.e., Leucine > Isoleucine
Branched chain amino acids are leucine, Isoleucine and valine.
1) Leucine is purely ketogenic.
2) Isoleucine is both ketogenic and glucogenic.
3) Valine is glucogenic.

198. Branched chain amino acid which is both ketogenic and glucogenic ?

a) Leucine

b) Isoleucine

c) Valine

d) Tryptophan

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

199. Succinyl CoA is formed from which glucogenic acid ?

a) Tyrosine

b) Phenylalanine

c) Valine

d) Proline

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

200. Glutathione consists of cysteine plus glutamate plus ?

a) Leucine

b) Lysine

c) Glycine

d) Valine

Correct Answer - C

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

<u>Glutathione</u>

Glutathione is a tripeptide made up of glutamate, cysteine and glycine (T-glutamyl-cysteinyl-glycine).

Glutathione is present in all mammalian cells *except neurons.*

The sulphydryl (-SH) group of cysteine residue is the reactive portion of glutathione which can undergo oxidation and reduction.

Thus, glutathione may exist as the reduced (G-SH) or oxidized form (G-S-S-G) and can play a role in some *oxidation-reduction reactions.*

In oxidized form two molecules of glutathione are linked by disulfide bond.

Glutathione has following function : -

i) It helps in keeping some enzyme in active state by preventing the oxidation of sulphydryl (-SH) group of enzyme.

ii) It helps in detoxification of H_2O_2 by reducing it. Superoxide anion (O_2) first converted to H_2O_2 by superoxide dismutase. H_2O_2 is then reduced to H_2O_2 by glutathione perioxidase, a reaction requires reduced glutathione. Thus, glutathione scavenges free radicals and superoxide anion.

iii) It helps in detoxification of xenobiotics by their conjugation (conjugation reaction)

(conjugation reaction).
iv) Reduced form of glutathione (GSH) with a free sulphydryl (-SH) group serves as a redox buffer, regulating redox state of the cell.
v) Reduced glutathione is essential for maintaining the normal structure of RBCs and for keeping hemoglobin iron in ferrous state (prevents formation of methemoglobin).
vi) It is involved in the transport of amino acids across the cell membane of kidney and intestine.

201. True about charge in amino acid ?

a) Carboxyl group can form positive charge

b) Amino group can form negative charge

c) Neutral at isoelectric pH

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Neutral at isoelectric pH

The pH value at which the number of positive charges equals the number of negative charges is isoelectric pH of amino acids.

At its isoelectric pH, an amino acid is in zwitterion form (dipolar molecule), i.e. has both positive and negative charge on same acid, but overall molecule is electrically neutral.

- The carboxy (-COON) group of an amino acid can donate protein *(Er)* and behave as an acid forming a negatively charged anion (coo).
- Amino group (-N1-1_2) can accept proton *(I-1^+)* and behave as a base, forming positively charged cation (NH3').

Amphoteric property of amino acid

- Substances having a two-way property are called amphoteric or ampholyte. Amino acids have both acidic and basic groups, i.e., they can donate a proton or accept a proton, hence amino acids are referred to as amphoteric. Amphoteric property is related to : *?*

Zwitterion or dipolar molecule

- Monoamine-Monocarboxylic amino acids exist as dipolar ion or zwitterions, i.e., they have both positive and negative charges on the same amino acids.
- The a-COOH group donate its proton to amino group (-NH_2) and becomes negatively charged anion (C00).

- The a-NH_2 group accepts proton from carboxyl group (a-COOH) to form positively charged cation (NH3').
- The overall molecule (zwitterion) is electrically neutral, i.e., the molecular species which contain an equal number of ionizable group of opposite charge and as a result bear no charge (are neutral) are called zwitterions.

202. Side chain of which amino acid contains sulfhydryl group ?

a) Aspargine

b) Cysteine

c) Isoleucine

d) Threonine

Correct Answer - B
Ans. is 'b' i.e., Cysteine
There are two sulfur containing amino acids :-
i) Cysteine
ii) Methionine
The side chain of cysteine contains sulfhydryl group that has a pKa of approximately 8.4 for dissociation of its hydrogen sulfhydryl groups of two cystein molecules can form covalent disulfide bond to form cystine.
Methionine although it contains sulfur group, does not containt sulfhydryl group and cannot form disulfide bond.

203. For conversion of asparatate to asparagine, nitrogen comes from ?

a) Alanine

b) Glutamate

c) Glutamine

d) Histidine

Correct Answer - C
Ans. is 'c' i.e., Glutamine
Synthesis of asparagine from aspartate is catalyzed by asparagine synthetase.
Donor of amide group (containing nitrogen) in this reaction is glutamine.

204. Which amino acid binds NH_4^+ covalently and makes it non-toxic for transportation ?

a) Histidine

b) Serine

c) Glutamate

d) Aspartate

Correct Answer - C

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

DISPOSAL/DETOXIFICATION OF AMMONIA

1. First line of Defense (Trapping of ammonia)

- Being highly toxic, ammonia should be eliminated or detoxified, as and when it is formed. Even very minute quantity of ammonia may produce toxicity in central nervous system.
- But, ammonia is always produced by almost all cells, including neurons.
- The intracellular ammonia is immediately trapped by glutamic acid to form glutamine, especially in brain cells .
- The glutamine is then transported to liver, where the reaction is reversed by the enzyme glutaminase .
- The ammonia thus generated is immediately detoxified into urea.
- Aspartic acid may also undergo similar reaction to form asparagine .

2. Transportation of Ammonia

- Inside the cells of almost all tissues, the transamination of amino acids produce glutamic acid.
- However, glutamate dehydrogenase is available only in the liver.
- Therefore, the final deamination and production of ammonia is

taking place in the liver .

- Thus, glutamic acid acts as the link between amino groups of amino acids and ammonia.
- The concentration of glutamic acid in blood is 10 times more than other amino acids.
- Glutamine is the transport forms of ammonia from brain and intestine to liver; while alanine is the transport form from muscle.

3. Final disposal

- The ammonia from all over the body thus reaches liver. It is then detoxified to urea by liver cells, and then excreted through kidneys.
- Urea is the end product of protein metabolism.

205. Histidine to histamine is ?

a) Carboxylation

b) Decarboxylation

c) Oxidation

d) Reduction

Correct Answer - B
Ans. is 'b' i.e., Decarboxylation
Histamine is synthesized from histidine by decarboxylation catalyzed by histidine decarboxylase.
Reaction requires pyridoxal phosphate (PLP) as coenzyme.

206. Rate limiting enzyme in catecholamine synthesis?

a) Dopa decarboxylase

b) N-methyltransferase

c) Dopamine hydroxylase

d) Tyrosine hydroxylase

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

207. In starvation, there is ketosis due to ?

a) Decreased acetyl CoA

b) Increased β-oxidation

c) Decreased lipolysis

d) Decreased fatty acid

Correct Answer - B
Ans. is 'b' i.e., Increased β-oxidation
Starvation is characterized by decreased insulin : glucagon ratio.
This causes *:?*
i) *Increased lipolysis* → More FFAs for ketogenesis.
ii) *Increased fi-oxidation* → Increased ketogenosis.
iii) *Decreased oxaloacetate* → Acetyl CoA is utilized in ketogenesis.
Regulation of ketogenesis
Ketogenesis is regulated at *three levels:?*
1) Factors regulating mobilization of fatty acids from adipose tissues (i.e. lipolysis):- Free fatty acids, the precursors of ketone bodies, arise from lipolysis of triglycerides in adipose tissue. Hence, factors which enhance lipolysis (e.g. *glucagon)* stimulate ketogensis by providing more free fatty acids. Conversely, factors that inhibit lipolysis (e.g. insulin) inbibit ketogenesis.
2) Factors regulating β-oxidation of fatty acids:- After uptake by liver, FAAs are either (i) β-oxidized to CO, or ketone bodies, or (ii) esterified to triacylglycerol. Carnitine acetyl transferase-I (CAT-I) regulates the β-oxidation of fatty acid and therefore the production of starting materials of ketogenesis i.e. acetylCoA and acetoacetyl-CoA (The remainder of fatty acids which do not enter β-oxidation, are estesified). Activity of CAT-1 is high in starvation and diabetes

leading to increased β-oxidation of fatty acids and increased ketogenesis. CAT-1 activity is low in well fed state, resulting in decreased 13-oxidation and ketogenesis. This regulation is governed by Malonyl CoA, which is an allosteric *inhibitor of carnitine acetyl transferase-1: CAT-1 (or carnitine palmitoyl transferase-1: (CPT-1).* Malonyl CoA is synthesized by acetyl CoA carboxylase. Activity of acetyl CoA carboxylase is high in well fed state due to increase in insulin/ glucagon ratio, which inturn results in increased formation of malonyl-CoA. Malonyl-CoA inhibits CAT-I (CPT-I) leading to decreased β-oxidation and ketogenesis. Hence, esterification of fatty acids is increased. Conversely, during starvation (and diabetes) insulin/glucagon ratio is decreased which results in decreased activity of acetyl CoA carboxylase and decreased production of malonyl-CoA, releasing the inhibition of CAT-I (CPT-I). This results in increase β-oxidation of fatty acids and ketogenesis.

3) Factors regulating the oxidation of acetyl CoA:- The acetyl-CoA formed in β-oxidation is oxidized in the citric acid cycle, or it enters the ketogenesis to form ketone bodies. *When oxaloacetate concentration is low,* little acetyl-CoA enters the TCA cycle and ketogenesis is favoured (first reaction of TCA cycle inolves oxaloacetate, where it combines with acetyl-CoA to form citrate). Concentration of oxalaceatate is lowered if carbohydrate is unavailable or improperly utilized, e.g. in *fasting and in diabetes.*

208. Rate limiting enzyme in fatty acid synthesis ?

a) PDH dehydrogenase

b) Malonyl reductase

c) Acetyl CoA carboxylase

d) Transacetylase

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

209. Acetyl CoA carboxylase enzyme is present in ?

a) Cytosol

b) Mitochondria

c) Nucleus

d) Lysosome

Correct Answer - A
Ans. is 'a' i.e., Cytosol
This question is slightly different from previous one.
The major acetyl CoA carboxylase which is involved in lipogenesis is acetyl CoA Carboxylase-1 (ACC-1). It is a cytosolic enzyme. In general acetyl CoA carboxylase refers to ACC-1.
There is one more isoform of acetyl CoA carboxylase, i.e. ACC-2. Which is present in muscle, allowing muscle to regulate β-oxidation. ACC-2 is present in mitochondria.

210. LCAT is induced by ?

a) Apo A-I

b) Apo B-48

c) Apo B-100

d) Apo C-II

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

211. Rate limiting enzyme in bile acid synthesis ?

a) Desmolase

b) 21 α-hydroxylase

c) 7α-hydroxylase

d) 12α-hydroxylase

Correct Answer - C
Ans. is 'c' i.e., 7α-hydroxylase
About half of the cholesterol in the body is ultimately metabolized to bile acids.
The primary bile acids are synthesized from cholesterol in liver. These are cholic acid and chenodeoxycholic acid.
Rate limiting enzyme in primary bile acids synthesis is 7α - *hydroxylase (cholesterol* 7α - *hydroxylase).*
This enzyme is inhibited by bile acids and induced by cholesterol.
Thyroid hormones induce transcription of 7a-hydroxylase, thus in patients with hypothyroidism plasma cholesterol tends to rise (because of inhibition of 7α-hydroxylase which in turn inhibits conversion of cholesterol to bile acids).

212. β-oxidation of fatty acids with odd number of carbon atoms yield ?

a) Acetyl CoA

b) Propionyl CoA

c) Both

d) None

Correct Answer - C
Ans. is 'c' i.e., Both
Even chain fatty acids are β-oxidized to acetyl CoA.
Odd chain fatty acids are also β-oxidized normally but the last step produces a 3-carbon propionyl CoA along with an acetyl CoA (instead of 2 molecules acetyl CoA that occurs in even chain fatty acids).
For example, a C-17 fatty acid produces 7 acetyl CoA molecules and one propionyl CoA molecule by β- oxidation.
Propionyl CoA is catabolized to succinyl CoA, a krebs cycle intermediate via methylmalonyl CoA. so, propionyl
CoA enters the gluconeogenic process.
This three carbon units (propionl CoA) from odd chain fatty acids is the only part of a fatty acid that is glucogenic.

213. Poly 'A' tail attached at 3' end of mRNA helps in?

a) Unwinding of mRNA

b) Stabilization of mRNA

c) Polymerization of mRNA

d) Transcription of mRNA

Correct Answer - B

Ans. is 'b' i.e., Stabilization of mRNA

At the 5^1-end, mRNA possesses a 7-methylguanosine triphosphate cap which helps in the recognition of mRNA in protein biosynthesis and it helps to stabilize the mRNA by preventing attack of 5^1-exonuclease.

At its 3^1-end, there is a poly-A tail made up of several adenylate residues which stabilize mRNA by preventing attack of 3^1-exonuclease.

214. Smallest unit of genetic expression

a) Gene

b) Cistrone

c) Codon

d) Genetic code

Correct Answer - B

Ans. is 'b' i.e., Cistrone

- Gene :- *It is the smallest functional unit of genome.* Gene is the unit of DNA that carries the information for synthesis of specific protein.
- Cistron:- It is smallest unit of genetic expression. It is the basic genetic unit coding for one polypeptide chain, i.e., a subunit of a complete protein molecule. It is regarded as one cistron-one subunit concept. Prokaryotic mRNA is polycistronic, i.e. each mRNA has several coding region. Eukaryotic mRNA is monocistronic, i.e. each mRNA has single coding region.
- Smallest functional unit of genome → gene, codes for a specific protein.
- Smallest unit of genetic expression → cistron, (codes for the subunit of protein, i.e. one polypeptide chain).

215. A codon codes for a single amino acid. This characteristic is called ?

a) Non-overlapping

b) Unambiguous

c) Non-punctate

d) Degeneracy

Correct Answer - B
Ans. is 'b' i.e., Unambiguous
Characteristics of genetic codes
Genetic codes have following characteristics ?
1) Universal :- Each codon specifically codes for same amino acid in *all species, e.g.* UCA codes for serine and CCA codes for proline in all organisms. That means specificity of codon has been conserved from very early stages of evolution. Exception to the universality of genetic coder are found in human mitochondria, where the code :-
α UGA codes for tryptophan instead of serving as a stop codon.
AUA codes for methionine instead of isoleucine.
CUA codes for threonine instead of leucine.
LI AGA and AGG serve as stop codon instead of coding for arginine.
2) Unambiguous/Specific :- A particular codon always codes for the same amino acid. For example CCU always codes for proline and UGG always codes for tryptophan.
3) Degeneracy/Redundancy :- A given amino acid may have more than one codon. For example, CCU, CCC, CCA and CCG all four codons code for proline. Therefore, there are 61 codons for 20 amino acids.
4) Stop or termination or nonsense codons:- Three of the 64 possible nucleotide triplets UAA (amber), UAG (Ochre) and UGA

(opal) do not code for any amino acid. They are called nonsense codons that normally signal termination of polypeptide chains. Thus, though there are 64 possible triplet codons, only 61 codes for 20 amino acids (as remaining three are non-sense codons).
5) Non overlapping and nonpuntate (Comma less) :- During translation, the code is read sequentially, without spacer bases, from a fixed starting point, as a continuous sequence of bases, taken 3 at a time, e.g. AUGCUA GACUUU is read as AUG/CUA/GAC/UUU without "ponctation" (coma) between codons.

216. Sickle cell anemia is due to which type of mutation?

a) Frame-shift mutation

b) Base substitution mutation

c) Trinucleotide repeat

d) Splice site mutation

Correct Answer - B

Ans. is 'b' i.e., Base substitution mutation

- 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 β-globin gene.
- It is caused by a point mutation (Base substitution mutation) at the sixth position of the β-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.
- If an individual is homozygous for the sickle cell mutation, almost all the hemoglobin in the red cell is HbS.
- In heterozyogotes, only about 40% of the hemoglobin is HbS, the remainder being normal hemoglobins.

217. RNA primer is synthesized by ?

a) Topoisomerase

b) Helicase

c) DNA primase

d) DNA ligase

Correct Answer - C
Ans. is 'c' i.e., DNA primase

218. Monitoring of DNA denaturation in vitro is done by ?

a) Centrifugation

b) UV absorption

c) Chromatography

d) HPLC

Correct Answer - B
Ans. is 'b' i.e., UV absorption
Denaturation (melting) of DNA
Denaturation (melting) refers to separation of the two strands of the DNA into two component strands. When temperature of medium is raised, the hydrogen bonds linking of complementary base pair tends to break. As a result, separation of two strands occur. Melting temperature (Tm) indicates the temperature at which half of the double stranded structure is lost. Normally, Tm is between 85° C and 95° C.
Since G and C are linked more strongly by three hydrogen bonds, in contrast to two hydrogen bonds linking A and T, G and C linking provides thermostability to DNA. Therefore, DNA molecules having higher GC content have relatively higher Tm. For every 10% increase in GC content, melting temperature increases by 5°C.
Simple formula is -
Tm (°C) = 2 (number of AT base pairs) + 4 (number of GC base pairs)
In addition to *heat, alkali treatment* and decrease of salt conentration also cause denatruation. Decrease in salt concentration decreases Tm. Therefore, *increase in salt concentration increases DNA duplex stability. Denaturation affects properties of DNA and these can be*

used to monitor strand separation -

i) Hyperchomicity (hyperchromic effect) : DNA bases (purines and pyrimidines) absorb UV light of 260 nm. Upon denaturation, this optical absorbance is increased and is called hyperchromicity of denaturation or hyperchromic effect.

ii) Viscosity : Viscosity of the DNA solution decreases on melting (denaturation) because single strands are more flexible than the stiff, resilient double helix.

The separated strands of denatured DNA can rejoin on gradual cooling. This is called renaturation or reannealing.

219. Polymerase chain reaction is used for ?

a) Cloning of DNA in vitro

b) Amplification of DNA in vitro

c) DNQA sequencing

d) Visualization of nucleic acid

Correct Answer - B

Ans. is 'b' i.e., Amplification of DNA in vitro

- PCR is a method of enzymatic amplification of a target sequence of DNA.
- It is *sensitive, selective (specific) and extremely rapid* means of amplifying any desired sequence of double stranded DNA, which can be as short as 50-100 base pairs (bp) and as long as 10 kbp.
- In PCR, the DNA to be amplified is replicated by DNA polymerase of Thermus aquaticus (Taq).
- Taq polymerase is used because it is thermostable, not denatured at a temperature upto 95°C (in PCR DNA is to be heated to 94°-95° C for separation of strands).
- For amplifying a desired DNA sequence in DNA, we have to know short flanking sequences on either side of the target sequence so that complementary primers can be prepared.
- Primers are the synthetic oligonucleotides of 20-35 sequence, which have sequence complementary to flanking sequence, i.e. sequence of flanking region of target DNA sequence.
- *Primers* are amplified to produce desired sequence of DNA.

220. Expected change in Vitamin B_{12} deficiency

a) Increased homocysteine in urine

b) Increased methylmalonic acid in urine

c) FIGLU in urine

d) Phenylalanine in urine

Correct Answer - B

Ans. is 'b' i.e., Increased methylmalonic acid in urine

Isomerization of methvlmalonyl CoA to succinyl CoA

In this reaction, active form of vitamin BI2 is deoxyadenosyl cobalamine.

Propionyl-CoA is produced as catabolic end product of some alipathic amino acids andβ-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 deficiency, i.e. methylmalonic aciduria.

221. Number of prosthetic groups in a hemoglobin molecule ?

a) 1

b) 2

c) 3

d) 4

Correct Answer - D
Ans. is 'd' i.e., 4

- Hemoglobin is a *conjugated protein* which has a *tetrameric* structure.
- It is an assembly of four globular proteins.
- Each subunit is composed of a protein part, i.e. globin and a nonprotein prosthetic group, i.e. heme.
- Each hemoglobin molecule is made up of 4 heme molecules and 4 polypeptide chains (2 pairs of similar polypeptide chains).

Hemoglobin=Globin (containing 4 polypeptide chains)+ 4 heme molecules

222. Regarding HMP shunt all of the following are true except:

a) Occurs in the cytosol

b) No ATP is produced in the cycle

c) It is active in Adipose tissue, Liver and Gonads.

d) The oxidative phase generates NADPH and the Non oxidative phase generates pyruvate.

Correct Answer - D
D i.e. The oxidative phase generates NADPH and non oxidative phase generates pyruvate
The oxidative (irreversible) phase of HMP shunt *produce NADPH and ribulose* 5 *phosphateQ,* whereas reversible non-oxidative phase catalyze the *interconversion of 3, 4, 5, 6, and 7 carbon sugars,* and permit ribulose 5 phosphate to be converted either to *ribose 5 phosphate (needed for nucleotide synthesis) or to intermediates of glycolysis - fructose 6 - PO4 & glyceraldehyde 3phosphateQ*

223. Cytopathology deals with ?

a) Cellular changes for diagnosis of disease

b) Tissue changes for diagnosis of disease

c) Both 'a' and 'b'

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Cellular changes for diagnosis of disease

Cytology

- Cytology is the study of cells.
- Cytology is that branch of life science, which deals with the study of cells in terms of structure, function and chemistry.
- Robert Hooke is sometimes seen as the father of cytology.

224. The earliest change seen in apoptosis is ?

a) Cell shrinkage

b) Pyknosis

c) Formation of apoptotic bodies

d) Fragmentation of cells

Correct Answer - A
Ans. is 'a' i.e., Cell shrinkage
Morphological changes in apoptosis

- Features of apoptosis are *:?*

1) Cell shrinkage : It is the earliest changes. It is due to damage to cytoskeletal proteins.
2) Chromatin condensation (pyknosis)/nuclear compaction : It is the most characteristic feature.
3) Formation of cytoplasmic blebs : It is the end stage of apoptosis.
4) Cytoplasmic eosinophilia.
5) Chromosomal DNA fragmentation : It is due to activity of endonuclease and caspases.
6) Formation of apoptotic bodies : These *are membrane bound round masses of eosinophilic cytoplasm with tightly packed orgaelles which may contain nuclear debries.* Important examples of apoptotic bodies are *civatte bodies, kamino bodies, councilman bodies, Tingible bodies, sunburn cells, satellite dyskeratotic cells, and eosinophilic globules.*
7) Phagocytosis of apoptotic cells and bodies by adjacent macrophages or healthy parenchymal cells.
8) Considerable apoptosis may occur before it becomes apparent on histological section.

Two very important differentiating features from necrosis are :?
A) Absence of inflammation.
B) Intact cell membrane.

225. Flow cytometry is done to know ?

a) Rapid cell shrinkage

b) Blood flow to brain

c) Net O_2 supply to tissues

d) Amount of O_2 bound to hemoglobin

Correct Answer - A
Ans. is *'a' i.e.,* Rapid cell shrinkage

226. In internal injury in body leukocyte is recruited by ?

a) IL 1

b) Selectin

c) Integrin

d) IL 6

Correct Answer - A
Ans. is 'a' i.e., IL 1
Internal injury in the cells of the body is recognized by cy_tosolic receptors that identify a diverse set of molecules that are liberated or altered as a consequence of cell damage.

- *These molecules include*
- *Uric acid (a product of DNA breakdown),*
- *ATP (released from damaged mitochondria), reduced intracellular K+ concentrations (reflecting loss of ions because of plasma membrane injury),*
- *DNA when it is released into the cytoplasm and not sequestered in nuclei*
- *These receptors activate a multiprotein cytosolic complex called the inflammasome, which induces the production of the cytokine interleukin-1 (IL-1).*
- *IL-1 recruits leukocytes and thus induces inflanunation.*

227. Which of the following is not a proinflammatory cytokine ?

a) IL 8

b) IL 11

c) IL 10

d) TNF alpha

Correct Answer - C
Ans. is 'c' i.e. IL 10

228. Sequence of events in acute inflammation ?

a) Vasodilatation → Stasis → Transient vasoconstriction → Increased permeability

b) Transient vasoconstriction → Stasis → Vasodilatation → Increased permeability

c) Transient vasoconstriction → Vasodilatation → Stasis → Increased permeability

d) Transient vasoconstriction →Vasodilatation → Increased permeability → Stasis

Correct Answer - D
Ans. is 'd' i.e., Transient vasoconstriction → Vasodilatation → Increased permeability → Stasis

229. Correct sequence in extravasation of leukocytes is ?

a) Margination - rolling- adhesion - transmigration

b) Transmigration- margination - rolling- adhesion

c) Rolling- adhesion- transmigration- margination

d) Adhesion- transmigration- margination- rolling

Correct Answer - A
Ans. is 'a' i.e., Margination-rolling-adhesion-transmigration
The sequence of events in the journey of leucocytes from the vessel lumen to interstitial tissue is called extravasation.

230. Leukocyte migration through endothelium is induced by ?

a) Selectin

b) N CAM

c) C CAM

d) PECAM

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

- Migration of the leukocytes through the endothelium is called transmigration or diapedesis.
- Transmigration of leukocytes occurs mainly in postcapillaryvenules.
- The molecules involved in transmigration are member of the immunoglobulin superfamily called CD31 or PECAM-1 (platelet endothelial cell adhesion molecule).

231. Sign of chronic inflammation ?

a) Angiogenesis

b) Purulent exudate

c) Induration

d) Edema

Correct Answer - A
Ans. is 'a' i.e. Angiogenesis
Chronic inflammation is characterized by :?

- Infiltration with mononuclear cells, which include → macrophages, lymphocytes, and plasma cells
- Tissue destruction, induced → the persistent offending agent or by the inflammatory cells
- Attempts at healing → connective tissue replacement of damaged tissue, accomplished by *angiogenesis (proliferation of small blood vessels) and, in particular, fibrosis.*

232. Cellular infiltrate seen in late pseudomonas infection is formed mainly by ?

a) Neutrophils

b) Lymphocytes

c) Monocytes

d) Plasma cells

Correct Answer - A

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

Chemotaxis of Leukocytes

- After exiting the circulation, leukocytes move in the tissues toward the site of injury by a process called *chemotaxis,* which is defined as locomotion along a chemical gradient.
- The nature of the leukocyte infiltrate varies with the age of the inflammatory response and the type of stimulus.
- In most forms of acute inflammation neutrophils predominate in the inflammatory infiltrate during the first 6 to 24 hours and are replaced by monocytes in 24 to 48 hours. There are, however, exceptions to this stereotypic pattern of cellular infiltration.
- In certain infections-for example
- Those produced by *Pseudomonas* bacteria-the cellular infiltrate is dominated by continuously recruited neutrophils for several days.
- In viral infections, lymphocytes may be the first cells to arrive.
- Some hypersensitivity reactions are dominated by activated lymphocytes, macrophages, and plasma cells (reflecting the immune response).
- And in allergic reactions, eosinophils may be the main cell type.

233. TNF and IL1 are produced by ?

a) Neutrophils

b) Monocytes

c) Lymphocytes

d) Activated Macrophages

Correct Answer - D
Ans. is 'd' i.e., Activated Macrophages
Tumor Necrosis Factor (TNF) and Interleukin-1 (IL-1)
TNF and IL-I serve critical roles in leukocyte recruitment by promoting adhesion of leukocytes to endothelium and their migration through vessels.
These cytokines are produced mainly by activated macrophages and dendritic cells; TNF is also produced by T lymphocytes and mast cells, and IL-1 is produced by some epithelial cells as well.
The secretion of TNF and IL-1 can be stimulated by microbial products, immune complexes, foreign bodies, physical injury, and a variety of other inflammatory stimuli.

234. Strength of wound after 2 months is governed by?

a) Collagen cross linking

b) Excess collagen deposition

c) Both 'a' and `b'

d) None of the above

Correct Answer - A
Ans. is 'a' i.e., Collagen cross linking
Wound strength

- At the *end of first week,* wound strength is *approximately 10%* that of normal skin.
- Strength increases rapidly over the next 4 weeks.
- At the *end of third months,* the strength reaches a plateau of about 70 to 80% of the normal skin, a condition that may persist for life.
- So, (Remember following facts)
- *Tensile strength never reaches the normal strength of unwounded tissue (i.e., 100%).*
- *Maximum strength is achieved by the end of 3 months.*
- *Maximum strength is 70-80% of normal tissue.*

How does tensile strength change with time ?

- During first 2 months it is due to excess collegen deposition.
- After that it is due to structural modification of collegen, i.e., cross-linking, increased fiber size.

235. Primary intentional healing which is true ?

a) Neovascularization is maximum by day 5

b) Neovascularization is maximum by day 3

c) Neutrophils appear at wound margins on day 3

d) The epidermis recovers its maximum thickness by day **7**

Correct Answer - A

Ans. is 'a' i.e., Neovascularization is maximum by day 5

Skin wound healing

- Skin wounds are classically described to heal by primary or secondary intention.

A. *Healing by primary intention*

- It occurs in wounds with opposed edges, e.g., surgical incision.
- The healing process follows a series of sequantial steps : ?

Immediate after incision

- Incisional space filled with blood containing fibrin and blood cells.
- Dehydration of the surface clot forms scab that covers the wound.

Within 24 hours

- *Neutrophils appear at the margins of wound.*

In 24-48 hours

- *Epithelial cells move from the wound edges along the cut margin of dermis, depositing basement membrane components as they move.*
- *They fuse in the midline beneath the surface scab, producing a continuous but thin epithelium layer that closes the wound.*

By day 3

- Neutrophils are largely replaced by macrophages.
- Granulation tissue progressively invades the incision space.

- Collegen fibers now present in the margin but do not bridge the incision.

By day 5

- Incisional space is largely filled with granulation tissue.
- Neovascularization is maximum.
- *Collegen fibrils become more abundant and begin to bridge the incision.*
- The epidermis recovers its normal thickness.

During second week

- Leukocytes and edema have disappeared.
- There is continued accumulation of collegen and proliferation of fibroblast.
- *By the end offirst month*
- *Scar is made up of a cellular connective tissue devoid of inflammatory infiltrate covered now by intact epidermis.*

B. *Healing by secondary intention*

- It occurs in wounds with seperated edges in which there is more extensive loss of cells and tissue.
- *Regeneration of parenchymal cells cannot completely restore the original architecture, and hence abundant granulation tissue grows.*

Healingby secondary from primary intention in several respects :

- Inflammatory reaction is more intense.
- Much larger amounts of granulation tissue are formed.
- Wound contraction occurs → Feature that most clearly differentiate secondary from primary healing.
- *Permanent wound contraction requires the action of myolifibroblasts - Fibroblasts that have the ultrastructural characteristic of smooth muscle cells.*

236. CD4 count refers to ?

a) T helper cells

b) B cells

c) Cytotoxic cells

d) Both B And T Cells

Correct Answer - A
Ans. is 'a' i.e., T helper cells

237. Endothelium activation refers to ?

a) Aberration of anatomy of vessel wall

b) Irreversible changes in functional state of vessel wall

c) Smooth muscle proliferation

d) Increased expression of adhesion molecules for leukocyte recruitment

Correct Answer - D
Ans. is 'd' i.e., Increased expression of adhesion molecules for leukocyte recruitment

- Vascular endothelium in its normal, unactivated state does not bind circulating cells or impede their passage.
- In *acute inflammation,* the endothelium is activated and can bind leukocytes as a prelude to their exit from the blood vessels.
- Inflammatory mediators like thrombin, IL - 1, Platelet Activating Factor, Histamine And TNFactivate endothelial cells by increasing expression of adhesion molecules which can bind leukocytes for leukocyte recruitment.

238. Which of the following is the preformed toxin involved in mechanism of allergic rhinitis ?

a) Histamine

b) Leukotriene

c) TXA2

d) PGD2

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

239. Type 5 hypersensitivity reaction is modification of ?

a) 1

b) 2

c) 3

d) 4

Correct Answer - B
Ans. is 'b' i.e., 2

240. T cell interleukins are all except ?

a) IL 1

b) IL 2

c) IL 4

d) IL 5

Correct Answer - A

Ans. is 'a' i.e., IL 1

Cytokines: Messenger molecules of immune system

- The induction and regulation of immune responses involve multiple interactions among lymphocytes, dendritic cells, macrophages, other inflammatory cells (e.g., neutrophils), and endothelial cells.
- Many cellular interactions and functions of leukocytes are mediated by secreted proteins called *cytokines.*
- Molecularly defined cytokines are called *interleukins,* because they mediate communications between leukocytes.
- Cytokines which contribute to different types of immune responses are as follows:
- In innate immune responses: TNF, IL-1, IL-12, type I IFNs, IFN-y,
- In adaptive immune responses (T cell): Inducer cytokines - IL-2, IL-4, IL-5, IL-17 and IFN-y; Terminating cytokines - TGF-P and IL-10.
- Stimulate hematopoiesis and are called *colony-stimulating factors:GM-CSF,* and IL-7.

241. Allergic BPA which kind of hypersensitivity reaction ?

a) Type I

b) Type II

c) Type III

d) Type IV

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

242. Most specific antibody in SLE is ?

a) Anti nuclear

b) Anti Sm

c) Anti Ro

d) Anti histone

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

243. Follicular dendritic cells, main function is -

a) Catches antigen and presents it to T cells

b) Catches antigen and presents it to B cells

c) Phagocytic activity

d) Produce immunoglobulins

Correct Answer - B

Answer- B. Catches antigen and presents it to B cells

- A second type of cell with dendritic morphology is present in the germinal centers of lymphoid follicles in the spleen and lymph nodes and is called the follicular dendritic cells.
- Such cells play a role in humoral immune responses by presenting antigens to B cells and selecting the B cells that have the highest affinity for the antigen, thus improving the quality of the antibody produced.

244. Multiple connective tissue disorder not associated with ?

a) SLE

b) Systemic sclerosis

c) Polymyositis

d) Sjogren's syndrome

Correct Answer - D
Ans. is 'd' i.e., Sjogren's syndrome
Mixed connective tissue disorder *:?*

- *The term mixed connective tissue disease is used to describe a disease with clinical features that are a mixture of the features of* SLE, systemic sclerosis, and Polymyositis.
- The disease is characterized serologically by high titers of antibodies to ribonucleoprotein particle-containing Ul ribonucleoprotein.
- Typically, mixed connective tissue disease presents with synovitis of the fingers, Raynaud phenomenon and mild myositis, but renal involvement is modest and there is a good response to corticosteroids, at least in the short term.
- Serious complications of mixed connective tissue disease include pulmonary hypertension, interstitial lung disease, and renal disease.

245. Following all are antigens for antiphospholipid antibody except ?

a) Prothrombin

b) Erythrocyte membrane

c) Phospholipid

d) Beta 2 glycoprotein

Correct Answer - B

Ans. is 'b' i.e., Erythrocyte membrane

Antiphospholipid syndrome

- Antiphospholipid syndrome develops in patients expressing antibodies to anionic phospholip. i.e., antiphospholipid antibody or lupus **anticoagulant.**
- These antibodies not only act against phospholipid, as it was believed, but also against epitopes of plasma proteins.
- A variety of protein have been implicated; *2-glycoprotein particularly important, i.e.,* antiphospholipid antibody is directed against the **phospholipid - 2-glycoprotein complex.**
- Other proteins are prothrombin, protein S, protein C, annexin V.

Three antibody are particularly important :

- *Antiphospholipid* (anti Cardiolipin)
- *Anti-2-glycoprotein (i.e.,* against 2-glycoprotein component of phosphilipid-2-glycoprotein complex).
- A *nti-prothrombin*

246. All are seen in primary extraglandalar sjogrens syndrome except ?

a) Rheumatoid arthritis

b) Raynaud's disease

c) Lymphoma

d) Splenomegaly

Correct Answer - A
Ans. is 'a' i.e., Rheumatoid arthritis
Primary Sjogren syndrome is not associated with other autoimmune disorders, e.g. Rheumatoid arthritis.
Sjogren syndrome occurs in *elderly* (50-60 yrs) female.

247. Chediak Higashi syndrome is characterized by?

a) Giant granules in leukocytes

b) Albinism

c) Mutation in LYST gene

d) All the above

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

- *The rapid antibody based diagnostic test/card test uses histidine rich protein 2 or lastate dehydrogenase.*
- *It is rapid simple sensitive and specific test.*

248. Chediak Higashi syndrome is characterised by the following except -

a) Neutrophilia

b) Defective degranulation

c) Delayed microbial killing

d) Giant granules

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

249. HLA I true is ?

a) Consists of A, B and C loci

b) Encodes complement region

c) Responsible for graft versus host response

d) Found only on cells of the immune system

Correct Answer - A
Ans. is 'a' i.e., Consists of A, B and C loci

250. Regeneration of liver after partial hepatectomyis example of ?

a) Hyperplasia

b) Hypertrophy

c) Both a and b

d) None of the above

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

251. Grading of cancer based on ?

a) Differentiation

b) Tumor necrosis

c) Tumor size

d) Lymph node status

Correct Answer - A
Ans. is 'a' i.e. Differentiation
Based on the degree of differentiation of tumour cells, the number of mitoses or architectual forms.

252. Reese ellsworth classification is used in ?

a) Retinoblastoma

b) Nephroblastoma

c) Rhabdomyosarcoma

d) Medulloblastoma

Correct Answer - A
Ans. is 'a' i.e., Retinoblastoma
The Reese-Ellsworth classification system was developed to predict the prognosis after treatment with radiation.

253. Karyotype in Klinefelter's syndrome is?

a) 47XXY

b) 45XO

c) 46XXY

d) 45XXX

Correct Answer - A
Ans. is 'a' i.e., 47XXY
Klinefelter syndrome :?

- Klinefelter syndrome is the most common chromosomal disorder associated with *male hypogonadism and infertility.*
- It is defined classically by a 47, XXY karyotype with variants demonstrating additional X and Y chromosomes. (Other variants can have 48 XXXY, rarely 49 XXXXY or mosaics can be there with some cells containing normal 46, XY and others 47, XXY). Classically, it results from meiotic non-dysjunction of sex chromosomes (40% during spermatogenesis and 60% during oogenesis). Mostly, non-dysjunction occur during 1" meiotic division.
- The patient has male phenotype with feminizing features due to extra X-chromosome (note : presence of one Y chromosome is sufficient for male phenotype. Thus XY, XXY, XXXY all are males). Extra inactive chromosome appears as Barr body.
- Important clinical features include microorchidism with normal external genitalia, *mental retardation,* gynecomastia, lack of secondary sexual characteristics with eunuchoid body habits, disproportionately long arms and legs, *hypogonadism,* increased incidence of tumors (breast carcinoma, germ cell tumors), increased incidence of autoimmune disorders (e.g. SLE), and cardiac problems *(most common is mitral valve prolapse).* Testosterone levels are

decreased, *whereas levels of gonadotropins (FSH/LH) are elevated.*

254. In Peibaldism ?

a) Inheritance pattern is autosomal dominant

b) Mutations of the KIT ligand, stem cell factor (SCF)

c) Is associated with deafness

d) Is characterized by excess melanocytes in the affected area

Correct Answer - A

Ans. is 'a' i.e., Inheritance pattern is autosomal dominant

Piebaldism

- Hypopigmentation disorder
- Caused by absence of melanocytes in the affected area.
- Autosomal dominant inheritance.
- There is a defect in the KIT proto - oncogene that codes for the KIT receptor. Thus defect in melanocyte survival results in hypopigmentation.
- *KIT receptor activation by KIT ligand/ Stem Cell Factor (SCF) results in phosphorylation and potentiation of MITE Potentiation of MITF activity is responsible for melanocyte survival during development.*

Clinical features

- Depigmented patches present on the ventral or lateral trunk and in mid extremities with sparing of hands and feet.
- Poliosis and white forelock may be associated. Deafness is not a feature.
- Piebaldism with deafness is referred to as Woolf syndrome.

255. Revised Ghent Criteria are used for the diagnosis of ?

a) Marfans syndrome

b) Ehler Danlos syndrome

c) Osteogenesis imperfecta

d) Duschene muscular dystrophy

Correct Answer - A

Ans. is 'a' i.e. Marfans syndrome

The clinical diagnosis of Marfan syndrome is currently based on "revised Ghent criteria" :?

- These take into account family history, cardinal clinical signs in the absence of family history, and presence or absence of fibrillin mutation.
- In general, major involvement of two of the four organ systems (skeletal, cardiovascular, ocular, and skin) and minor involvement of another organ is required for diagnosis.

256. Collagen affected in Osteogenesis imperfecta -

a) Type I

b) Type II

c) Type III

d) Type IV

Correct Answer - A
Answer- A. Type I

- Osteogenesis imperfecta also known as brittle bone disease, or 'Lobstein syndrome" is a congenital bone disorder.
- People with OI are born with defective connective tissue, or without the ability to make it, usually because of a deficiency of Type-I collagen.

257. Alpha 1 antitrypsin deficiency mechanism of transmission ?

a) Autosomal recessive

b) Autosomal dominant

c) X linked recessive

d) X linked dominant

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

258. Which of the following is not due to genetic mutation -

a) Diabetes mellitus type II

b) Cystic fibrosis

c) Hemophilia

d) Alpha 1 antitrypsin deficiency

Correct Answer - A

Ans. is 'a' i.e., Diabetes mellitus type II

Disorders with multifactorial inheritance :

The multifactorial disorders result from the combined actions of environmental influences and two or more mutant genes having additive effects.

Multifactorial disorders are:

- Cleft lip/cleft palate
- Coronary heart disease
- Congenital heart diseases
- Hypertension
- Diabetes mellitus type II
- Gout
- Pyloric stenosis
- Other options in question i.e. hemophilia, alpha-1 antitrypsin deficiency, and cystic fibrosis are due t genetic mutations.

Note: Diabetes insipidus is X linked recessive disorder due to genetic mutation.

259. SLE mitral and tricuspid valve vegetations are?

a) Salmon patch

b) Libmann sach's disease

c) Janeway lesions

d) Oslers nodes

Correct Answer - B

Ans. is 'b' i.e., Libmann sach's disease

Endocarditis of Systemic Lupus Erythematosus (Libman-Sach's Disease)

- **Mitral and tricuspid valvulitis** with small, sterile vegetations, called **Libman-Sach's endocarditis,** is occasionally encountered in **systemic lupus erythematosus.**
- Due to the use of steriods, the incidence of this complication has been greatly reduced.
- The lesions are **small (1 to 4 mm in diameter), single or multiple, sterile, pink vegetations with a warty (verrucous) appearance located on the undersurfaces of the atrioventricular valves, on the valvuar endocardium, on the chords, or on the mural endocardium of atria or ventricles.**

260. True about atherosclerosis ?

a) Chronic inflammatory disorder of vessel wall

b) Not lead to complications of vessel wall

c) Thoracic aorta more than abdominal aorta

d) Atherosclerostic plaques do not demonstrate neovascularization

Correct Answer - A

Ans. is 'a' i.e., Chronic inflammatory disorder of vessel wall

Facts about atherosclerosis

Is a chronic inflammatory and healing response of the arterial wall to endothelial injury.

Atherosclerosis progresses in the following sequence:

Endothelial injury and dysfunction → Accumulation of lipoproteins (mainly LDL) Monocyte adhesion to the endothelium, followed by migration into the intima and transformation into macrophages and foam cells → Platelet adhesion factor release from activated platelets, macrophages, and vascular wall cells → Smooth muscle cell proliferation, extracellular matrix production, and recruitment of T cells → Lipid accumulation both extracellularly and within cells (macrophages and smooth muscle cell).

In descending order, the most extensively involved vessels are the **lower abdominal aorta,** the coronary arteries, the popliteal arteries, the internal carotid arteries, and the vessels of the circle of Willis. In humans, the **abdominal aorta is typically involved to a much greater degree than the thoracic aorta.**

261. Arterial biopsy of elderly male shows fragmentation of elastic lamina, lymphocyte infiltration and giant cells ?

a) Temporal arteritis

b) Takayasu disease

c) Polyarteritisnodosa

d) Kawasaki disease

Correct Answer - A

Ans. is 'a' i.e., Temporal arteritis

***Giant* cell arteritis or temporal arteritis**

- It is the *most common form of systemic vasculitis in adults.*
- It is an acute and chronic, often granulomatous inflammation of arteries of large to small size.
- Giant cell arteritis affects principally the arteries in the head, especially the temporal arteries which is the extracranial branch of carotid artery.
- *Vertebral* and *ophthalamic arteries* may also be involved.
- Segment of affected artery develops nodular thickening with narrowing of lumen.
- There is granulomatous inflammation in the vessel wall with foreign body and Langhans type multinulated giant cells and fragmentation of internal elastic lamina.

Presentation of Giant cell arteritis

- Constitutional symptoms
- Most common nonspecific symptoms
- Include malaise, fatigue, anorexia and weight loss.
- These symptoms are due to generalized involvement of the body

and are not related to any organ involvement. o Headache

- It is most common vasculitis related symptom.
- Most commonly over temporal region.
- Jaw claudication
- It is *most specific* symptom of GCA.
- It is manifestated as pain in masseter when eating food that require vigrous chewing because oxygen demand of the masseter exceeds the supply provided by narrowed and inflamed arteries.
- Visual symptoms
- Diplopia and visual loss.
- Ophthalmic artery involvement can lead to *sudden blindness* which is the *most feared complication* of GCA.
- Polymylagia rheumatica
- Aching and stiffness of the shoulder, neck and lip girdle area.
- Arthritis
- Raised ESR
- Normocytic - Normochromic anemia

262. Temporal arteritis all are associated except ?

a) Elderly patient

b) Low ESR

c) Giant cells

d) Polymyalgia rheumatica

Correct Answer - B
Ans. is 'b' i.e., Low ESR
Temportal Arteritis is characterized by *:?*

- *Headache*
- *Jaw claudication*
- *Visual symptoms*
- *Polymyalgia rheumatica*
- *Arthritis*
- Raised ESR
- *NormocyticNormochronic anemia*

263.

Carcinoid heart disease affects which part ?

a) Valvular endocardium

b) Pericardium

c) Myocardium

d) Epicardium

Correct Answer - A
Ans. is 'a' i.e., Valvular endocardium
Carcinoid Heart Disease

- Carcinoid heart disease is the cardiac manifestation of the systemic syndrome caused by carcinoid tumors. It generally involves *the endocardium and valve of the right side of heart.*
- Cardiovascular lesions consist of firm *plaque like endocardial fibrous thickenings on the inside surfaces of the cardiac chambers and the tricuspid and pulmonary valves.* Occasionally they involve the major blood vessels of the right side, the inferior vena cava and the pulmonary artery. These plaque like thickenings are composed *predominantly of smooth muscle cells and sparase collagen* fibres embedded in an acid mucopolysaccharide-rich matrix materials. Elastic fibers are not present in the plaque.
- *The most common cardiac manifestation is tricuspid regurgitation.* Stenosis of right sided valve may also develop.
  Why does right sided heart involvement more common ?
- Carcinoid tumors produce a variety of bioactive products that produce these (above described) heart lesions. Among these, *serotonin is most important.* Serotonin is inactivated during its passage through lung. As you all know, left side of heart recieve blood from pulmonary circulation, left sided hear lesions are uncommon (Because serotonin has already been metabolized in

lung).

- Similarly, gastrointestinal carcinoid tumors do not induce carcinoid heart disease (neither right nor left) as bioactive mediators released into the portal circulation are metabolized in the liver. Therefore carcinoid heart disease is produced by tumors that have extensive hepatic metastasis (liver releases the mediators directly into IVC) or carcinoid tumors of organs that are outside portal circulation (e.g., ovary).

264. Causative organism of rheumatic fever ?

a) Group A Streptococci

b) Staphylococci

c) Group B Streptococci

d) Group D Streptococci

Correct Answer - A
Ans. is 'a' i.e., Group A Streptococci
<u>Rheumatic fever</u> :?
Rheumatic fever (RF) is an acute, immunologically mediated, multisystem inflammatory disease classically occurring a few weeks after an episode of group A streptococcal pharyngitis; occasionally, RF can follow streptococcal infections at other sites, such as the skin.

265. True about the basic structure of atherosclerosis plaque is ?

a) Concave part formed by fibrous cap

b) Convex part formed by tunica media of the vessel

c) Convex part formed by fibrous cap

d) Necrotic core contains collagen, elastin and proteoglycans

Correct Answer - C
Ans. is 'c' i.e., Convex part formed by fibrous cap
. The convex part is formed by the fibrous cap, which consists of smooth muscle cells, macrophages, foam cells, lymphocytes, collagen, elastin and proteoglycans.
. The central necrotic core is formed of cell debris, cholesterol crystals, foam cells and calcium.
. The concave part is formed by the tunica media of the vessel

266. Cleft like space in atheromatous plaque contains

a) Cholesterol crystals

b) Smooth muscle cells

c) Fibrous tissue

d) None of these

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

267. Concentric hypertrophy of left ventricle is seen in?

a) Mitral stenosis

b) Hypertension

c) Aortic regurgitation

d) None

Correct Answer - B

Ans. is 'b' i.e., Hypertension

- Concentric hypertrophy —> In pressure overload, e.g. hypertension and aortic stenosis. o Eccentric hypertrophy → In volume overload, e.g. in aortic regurgitation.

Adaptations in heart

- The cardiac myocyte is terminally differentiated cell that is not able to divide.
- Myocardium cannot undergo hyperplasia, i.e. increase in the number of myocyte.
- So, myocardium can adapt by increasing the size (i.e. hypertrophy) of the myocyte in response to stress.
- There are two types of stresses to heart

1. Pressure overload

- Occur in hypertension or aortic stenosis.
- Pressure overloaded ventricles develop concentric hypertrophy of the left ventricle, with increased in wall thickness → Heart size may increase.
- The increase in wall thickness may reduce the cavity diameter --> ratio of cavity size to wall thickness decreases.
- There is increase in the transverse diameter (width) of myocytes, but cell length remains the same.

2. Volume overload

- As occurs in aortic regurgitation
- There is dilatation of ventricular chamber along with increased thickness of ventricular wall→ Eccentric hypertrophy.
- There is increase both in the transverse diameter (width) and the length of myocytes.
- It is due to deposition of the sarcomeres (functional intracellular contractile unit of cardiac muscles) in parallel to the long axis of cells.

268. Which of the following deficiency does not cause dilated cardiomyopathy ?

a) Calcium

b) Selenium

c) Manganese

d) Carnitine

Correct Answer - C
Ans. is 'c' i.e., Manganese
Some nutrient deficiency may also cause dilated cardiomyopathy e.g. deficiency of thiamine, selenium, carnitine, calcium, phosphate or magnesium.

269. All of the following statements about Churg Strauss Syndrome are true, except:

a) Marked Eosinophilia

b) Mononeuritis multiplex is common

c) Renal failure is common

d) Often associated with Allergic Rhinitis

Correct Answer - C
Answer is C (Renal failure is common):
Churg Strauss Syndrome is not prominent and renal failure is rare. The Renal disease in Churg Strauss Syndrome is less common and generally less severe than with granulomatosis with polyangitis (Wegener's) and microscopic polyangitis '- Harrison's 18th/2793
'Renal failure is rare in Churg Strauss syndrome - Pulmonary Involvement in Systemic Autoimmune Disease

270. Which of the following is a quantitative defect in globin synthesis

a) Thalassemia

b) Sickle cell hemoglobinopathy

c) G6PD deficiency

d) Diamond-Black fan syndrome

Correct Answer - A
Ans. is 'a' i.e., Thalassemia
The thalassemia syndromes are a heterogeneous group of disorders caused by inherited mutations that decrease the synthesis of either the c-globin or p-globin chains that compose adult hemoglobin, HbA (c2p2), leading to anemia, tissue hypoxia, and red cell hemolysis related to the imbalance in globin chain synthesis.

271. Most characteristic of megaloblastic anemia ?

a) Target cell

b) Macrocyte

c) Microovalocyte

d) Macroovalocyte

Correct Answer - D
Ans. is 'd' i.e., Macroovalocyte
. Most characteristic finding of megaloblastic anemia --> Macrocytes/Macroovalocytes.
. Earliest finding of megaloblastic anemia --> Hypersegmented neutrophils.

272. Characteristic blood picture in megaloblastic anemia ?

a) Macrocytosis and increased reticulocyte count

b) Macrocytosis and decreased reticulocyte count

c) Microcytosis and increased reticulocyte count

d) Microcytosis and decreased reticulocyte count

Correct Answer - B

Ans. is 'b' i.e., Macrocytosis and decreased reticulocyte count

Findings of megaloblastic anemia

Peripheral blood

- *Macrocytosis megaloblastic RBC* → Due to nuclear/cytoplasmic asynchrony.
- Macrocytes lack central pallor of normal RBC.
- *Anisopoikilocytosis* → Marked variation in shape and size.
- Majority of RBCs appear as *macroovalcytes.*
- Few *tear drop cells.*
- Low reticulocyte count
- Some nucleated RBCs may appear (normally, during maturation of RBC, nucleus disappears).
- *Hyper-segmented neutrophils → First manifestation of megaloblastic anemia.*
- Large megakaryocytes with multilobate nuclei.
- Evidence of erythropoiesis : - Basophilic stippling, Cabott Ring, Howell-jolly bodies.

273. Increased osmotic fragility seen in

a) Alpha thalasemmia

b) Beta thalassemia

c) Sickle cell anemia

d) Hereditary spherocytosis

Correct Answer - D

Ans. is 'd' i.e., Hereditary spherocytosis

Osmotic fragility of Red blood cells.

- Red blood cell osmotic fragility is the resistance of RBC hemolysis to osmotic changes.
- Normally RBC maintains osmotic equilibrium with the surrounding medium i.e., with serum that has 0.9% NaCI.
- As the surrounding medium becomes hypotonic fluid will enter into the cell along osmotic gradiant, eventually
- under very hypotonic conditions the cell will enlarge to capacity and rupture Osmotic lysis.
- *Osmotic fragility is determined by measuring the degree of hemolysis in hypotonic saline.*
- Normal red cell begins to lyse at 0·5% NaC1 and the hemolysis is complete at 0·3 NaCl.
- *Red blood cells osmotic fragility is considered to be increased if hemolysis occur in a NaCI concentration > 0-5%.*
- *Osmotic fragility is considered to be decreased if the hemolysis is not complete in a 0-3% of NaCI.*

274. Pernicious anemia associated with ?

a) Gastric pathology

b) Renal pathology

c) Esophageal pathology

d) Oral pathology

Correct Answer - A
Ans. is 'a' i.e., Gastric Pathology
Anemias of Vitamin B12 Deficiency: Pernicious Anemia

- *Pernicious anemia is a specific form of megaloblastic anemia caused by an autoimmune gastritis that impairs the production of intrinsic factor, which is required fir vitamin B12 uptake from the gut.*
- Histologically, there is a *chronic atrophic gastriti* smarked by loss of parietal cells, prominent infiltrate of lymphocytes and plasma cells, and megaloblastic changes in mucosal cells.

275. Tear drop cell together with leukoerythroblast seen in ?

a) Megaloblastic anemia

b) Iron deficiency anemia

c) Aplastic anemia

d) Primary myelofibrosis

Correct Answer - D
Ans. is 'd' i.e., Primary myelofibrosis
Primary Myelofibrosis :?

- The hallmark of primary myelofibrosis is the development of obliterative marrow fibrosis.
- The chief pathologic feature is the extensive deposition of collagen in the marrow by non-neoplastic fibroblasts.
- It is probably caused by the inappropriate release of fibrogenic factors; platelet-derived growth factor and TGF-fl from neoplastic megakaryocytes.
- Marrow distortion leads to the premature release of nucleated erythroid and early granulocyte progenitors (leukoerythroblastosis) in peripheral blood.
- Teardrop-shaped red cells (dacryocytes), cells that were probably damaged during the birthing process in the fibrotic marrow, are also often seen in peripheral blood.

276. FFP not used in ?

a) TTP

b) Factor XII deficiency

c) Vitamin K deficiency

d) Antithrombin III deficiency

Correct Answer - B
Ans. is 'b' i.e., Factor XII deficiency
Fresh frozen plasma (FFP)
FFP is defined as the fluid portion of human blood that has been centrifuged, separated, and frozen solid at -18°c within 6 hours.
FFP contains stable coagulation factors and plasma proteins :
(i) Fibrinogen
(iii) Albumin & Immunoglobulin
(v) Factor II, V, VII, IX, X, XI
(ii) Antithrombin
(iv) Protein C, S.
Indications for the use of FFP are : ?

- Deficiencies of factor II, V, VII, IX, X and XI when specific component therapy is neither available nor appropriate.
- Emergency reversal of warfarin effect.
- In vit K deficiency as replacement for Vit K dependent factors (II, VII, IX, X)
- Antithrombin III deficiency
- After massive blood transfusion.
- In immunodeficiency as a source of immunoglobulin
- TTP

277. Not a vessel wall condition leading to bleeding ?

a) Henoch-schonleinpurpura

b) Autoimmune thrombocytopenic purpura

c) Cushing's syndrome

d) Scurvy

Correct Answer - B

Ans. is `b' i.e., Autoimmune thrombocytopenic purpura

Bleeding disorders caused by vessel wall abnormalities are as follows :

- Infections: meningococcemia, rickettsioses
- Drug induced leukocytoclasticvasculitis
- Scurvy, EhlerDanlos syndrome, Cushing's syndrome
- Henoch-Schonleinpurpura
- Hereditary hemorrhagic telangiectasia (Weber-Osler-rendu syndrome)
- Perivascular amyloidosis

Note : *Autoimmune thrombocytopenic purpura is a bleeding disorder primarily caused due to thrombocvtopenia.*

278. Inhibition of platelet aggregation by ?

a) ADP

b) Thromboxane A2

c) Thrombin

d) Bradykinin

Correct Answer - D
Ans. is 'd' i.e., Bradykinin
Factors promoting platelet aggregation : ADP, TXA, epinephrine, serotonin, vWF, fibrinogen, collagen, immune complex, thrombin, thrombospondin.
o Factors inhibiting platelet aggregation: PGIr, NO, endothelin, bradykinin.

279. Increased Prothrombin time results from deficiency of ?

a) Factor IX

b) Fibrinogen

c) Factor VI

d) Factor XI

Correct Answer - B

Ans. is 'b' i.e., Fibrinogen

Tests used to evaluate different aspects of hemostasis :

i) <u>Bleeding time</u>

- It is not a test for coagulation rathers it tests the ability of the vessels to vasoconstrict and the platelets to form a hemostatic plug.
- It is the time taken for a standardized skin puncture to stop bleeding.
- Normal reference value is between 2-9 minutes.
- Prolongation generally indicates the defect in platelet number or function.

ii) <u>Prothrombin time (PT)</u>

- This assay tests the extrinsic and common coagulation pathway.
- So, a Prolonged PT can result from deficiency of factor V, VII, X, prothrombin or fibrinogen.

iii) <u>Partial thromboplastin time (PTT)</u>

- This assay tests the intrinsic and common coagulation pathways.
- So, a prolonged PTT. can results from the deficiency of factor V, VIII, IX, X, XI, XII, prothrombin or fibrinogen.

iv) <u>Thrombin time</u>

- It is the time taken for clotting to occur when thrombin is added to the plasma.
- It tests the conversion of fibrinogen to fibrin and depends on

adequate fibrinogen level.

- Prolonged thrombin time results from decreased level of fibrinogen.

280. Alpha thalassemia is due to ?

a) Alpha chain deficiency

b) Alpha chain excess

c) Beta chain deficienc

d) Beta chain excess

Correct Answer - A
Ans. is 'a' i.e., Alpha chain deficiency
Alpha-thalassemia
People who do not produce enough alpha globin chain have alpha - thalassemia. Alpha globin chain is made by four genes, each gene contributes to 25% of the a-globin chains. The severity of a-thalassemia varies greatly depending on the number of a-globin genes affected -
i) Silent carrier state
Single a-globin gene is deleted. These individuals are completely asymptomatic.
ii) a-thalassemia trait
Two a-globin genes are deleted. These individuals are asymptomatic with some red cell abnormalities like β-thalassemia minor.
iii) HbH disease
Three genes of a-globin chain are deleted. With only one gene, the synthesis of a-chain is markedly reduced and tetramers of excess β-globin, called HbH, form. HbH has extremely high affinity for oxygen and therefore is not useful for oxygen exchange, leading to tissue hypoxia disproportionate to the level of hemoglobin. Patients have moderate to severe anemia that may require occasional blood transfusion.
iv) Hydrops fetalis

iv) Hydrops fetalis

There is deletion of all four a-globin genes. In the fetus, excess y-globin chains form tetramers, known as hemoglobin harts. *Hemolgobin bart has such a high affinity for oxygen that it delivers almost no oxygen to tissues.* Most individuals die before or shortly after birth. In utero blood transfusion have allowed the birth of children with hydrops fetalis who then require life long blood transfusions.

281.

Multiple myeloma most common part involved is?

a) Bone marrow

b) Cortex of bone

c) Metaphyses

d) Epiphyses

Correct Answer - A

Ans. is 'a' i.e., Bone marrow

Multiple myeloma

- Multiple myeloma is a plasma cell neoplasm characterized by involvement of the skeleton at multiple sites.
- Plasma cells proliferate abnormally and the proliferated plasma cells infiltrate various organs, particularly bone marrow, but can also spread to lymph nodes and extranodal sites like skin.
- The proliferation and survival of myeloma cells are dependent on several cytokines, IL-6 is particularly important.
- The neoplastic plasma cells secrete abnormally large amounts of immunoglobulin.
- The immunoglobulin secreted by neoplastic plasma cells are quiet different form the immunoglobulin normally present in the blood.
- The normal immunoglobulin consists of two heavy and two lights chains molecules and the production of both chain is tightly balanced.

The immunoglobulin secreted in this condition may be :-

- Isolated light chain or heavy chain.
- May be an intact antibody molecule of any heavy chain subclass.
- May be an altered antibody or fragment.

282. Systemic military TB occurs when spread occurs via -

a) Arterial

b) Venous

c) Lymphatic

d) Direct dissemination

Correct Answer - B

Answer- B. Venous

- Systemic miliary tuberculosis occurs when tubercle bacteria disseminate through the systemic arterial system.
- Miliarpuberculosis is most prominent in the liver, bone marrow, spleen, adrenals, meninges, kidneys, fallopian tubes, and epi-didymis, but could involve any organ.

283. Ghons focus lies at ?

a) Left apical parenchymal region

b) Right apical parenchymal region

c) Sub pleural caesous lesion in right upper lobe

d) Sub pleural caesous lesion in left upper lobe

Correct Answer - C

Ans. is 'c' i.e., Right apical parenchymal region

Primary T.B. includes :?

- An area of grey white (size of approx. 1-1·50 cm) inflammatory consolidation - called ghon's focus. o Lymph node.
- Lymphatics and lymphatic channel.
- Cavity and fibrosis is seen in secondary T.B.
- Inhaled tubercule bacilli implanted in the distal air spaces of the *lower part of upper lobe or upper part of the lower lobe, close to the pleura.* This area is about 1 to 1.5 cm with caseating necrosis known as Ghon's focus.

Primary complex or Ghon's complex of tuberculosis consists of 3 components :

- Pulmonary compound or Ghon's focus.
- Draining lymphatics
- Caseating hilar lymphnode

Assman's focus

- The initial lesion in secondary tuberculosis at the apex of lung (infraclavicular) without any lymph node involvement is called Assman's focus.

Ghon's complex

- The initial lesion in primary tuberculosis at the periphery of the lung along with the enlarged peribronchial lymph node is called Ghon's

complex.

284. Asbestosis all are features except

a) Pleural cancer

b) Lung carcinoma

c) Pleural effusion

d) Atelectasis

Correct Answer - D
Ans. is 'd' i.e., Atelectasis
Asbestos-Related Diseases :?

- Asbestos is a family of proinflammatory crystalline hydrated silicates that are associated with pulmonary fibrosis, carcinoma, mesothelioma, and other cancers.
- There are two distinct geometric forms of asbestos:

.. Serpentine chrysolite - most of the asbestos used in industry
2. Amphibole (crocidolite)

- Both serpentine and amphibole can cause all asbestos related diseases except for mesothelioma, which is usually associated with amphibole (crocidolite).

Asbestos related diseases consist of :?

- Localized fibrous plaques which may be calcified.
- Diffuse pleural fibrosis.
- Pleural effusion.
- Parenchymal interstitial fibrosis (asbestosis).
- Lung carcinoma —> Most common neoplasm associated with asbestos exposure.
- Mesothelioma of pleura and peritoneum —> most specific neoplasm associated with asbestos exposure. o Laryngeal and colon carcinomas.
- Stomach carcinoma.

285. Alveolar hemorrhage and hemosiderin laden macrophages ?

a) Sarcoidosis

b) Goodpasture syndrome

c) Bronchial pneumonia

d) Bronchieactasis

Correct Answer - B

Ans. is 'b' Goodpasture syndrome

Goodpasture syndrome

- Goodpasture syndrome is a rare condition characterized by rapid destruction of the kidney and diffuse pulmonary hemorrhage.
- It is an autoimmune disease characterized by presence of circulating autoantibodies targeted against basement membrane of lung and kidney.
- These antibodies are directed against the noncollagenous domain of the a-3 chain of type IV collegen (collegen of basement membrane).
- The antibodies initiate an inflammatory destruction of the basement membrane in kidney glomeruli and lung alveoli.
- In Goodpasture syndrome, immune reaction is type II hypersensitivity.

Morphological changes

Lung

- The lungs are heavy, with areas of red brown consolidation.
- There is *focal necrosis of alveolar walls associated with intraalveolar hemorrhages.*
- Alveoli contain hemosiderin-laden macrophages.
- Linear deposits of immunoglobulins along the basement membranes of the septal walls.

Kidney

- Diffuse proliferative rapidly progressive glomerulonephritis.
- Focal necrotizing lesion and *crescents* in >50% of glomeruli.
- *Linear deposits of immunoglobulins and complement along glomerular basement membrane.*

Clinical manifestations

- Occur typically in *young males.*
- Most cases *begin* clinically with respiratory symptoms, principally *hemoptysis.*
- Soon, manifestations of glomerulonephritis appear and typically present as *nephritic syndrome* → hematuria, nephritic urinary sediment, subnephrotic proteinuria, rapidly progressive renal failure.
- The common cause of death is renal failure.

286. ACTH is produced by which of the following Bronchogenic carcinomas

a) Adenocarcinoma

b) Small cell carcinoma

c) Squamous cell carcinoma

d) Branchoalveolar carcinoma

Correct Answer - B
Answer is B (Small cell carcinoma):
Small cell carcinomas are the most common bronchogenic carcinomas associated with paraneoplastic syndrome and ectopic hormone production including ACTH.
ACTH may also be uncommonly produced by non small cell variants including adenocarcinoma and squamous carcinomas, but small cell carcinoma is the most common source of ectopic ACTH.
'Small cell carcinoma lung (>50%) is by for the most common cause of ectopic ACTH production followed by Thymic carcinoids (15%), islet cell tumors (10%), bronchial carcinoids (10%), other carcinoids (5%) and pheochromocytomas (2%) - Harrison's 18th/829
Ectopic ACTH Production (Bold)

- *Small cell carcinoma (50) Lung*
- *Thymic carcinoids (15%)*
- *Islet cell tumors (10%)*
- *Bronchial carcinoid (10%)*
- *Other carcinoids (5%)*
- *Pheochromocytomas (2%)*

287. Stone seen in urinary tract infection is ?

a) Calcium oxalate

b) Uric acid stones

c) Staghorn calculus

d) Cysteine stones

Correct Answer - C

Ans. is 'c' i.e., Staghorn calculus

Urolithiasis :?

- Calcium Oxalate stones → associated with hypercalcemia and hypercalciuria
- Staghorn Calculi → Large Magnesium ammonium phosphate stones formed in patients with infection of urine splitting organisms (Proteus and some staphylococci) followed by precipitation in alkaline urine.
- Uric acid stones → Patients with hyperuricemia
- Cystine stones → Genetic defect in renal reabsorption of cytine leading to cystinuria.

288. All are true about postreptococcal glomerulonephritis except -

a) Crescent formation

b) Subepithelial deposits

c) Granular deposits of IgG

d) Deposition of IgA

Correct Answer - D
Ans. is 'd' i.e., Deposition of IgA
Post streptococcal (Acute proliferative) glomerulonephritis
o Post streptococcal glomerulonephritis (PSGN) is an acute proliferative glomerulonephritis which is characterized by diffuse proliferation of glomerular cells, associated with influx of leukocytes.
o PSGN is characterized by -
i) *Enlarged, hypercellular glomeruli* that is caused by
o Infiltration of leukocytes, both neutrophils and monocytes.
o Proliferation of endothelial cells and mesangial cells.
Proliferation and leukocyte infiltration is diffuse, i.e. involving all lobules of all glomeruli.
ii) In *sever form —> Crescent* formation.
iii) By *immunofluorescence microscopy,* there are granular deposits of IgG, IgM and C3 in the mesangium and along the basement membrane.
iv) The characteristic electron microscopic findings are discrete, amorphous, electron dens deposits on the epithelial side of the membrane, often having the appearance of humps —> Subepithelial humps.
v) Subendothelial, intramembranous (within GBM) and mesangial deposits may be present.

Also know
In its severe form acute diffuse proliferative GN may show rapid deterioration of renal function with formation of crescent in the glomeruli —> it is referred as *rapidly progressive glomerulonephritis.*

289. Which of the following is seen in kidney malignant hypertension?

a) Hyaline necrosis

b) Fibrinoid necrosis

c) Medial wall hyperplasia

d) Microaneurysm

Correct Answer - B

Ans. is 'b' Fibrinoid necrosis

Malignant nephrosclerosis is the form of renal disease associated with malignant or accelerated phase of hypertension.

Pathology of kidney in Malignant Hypertension

On Gross Inspection :

- The kidneys are normal in size or slightly enlarged. They have a smooth surface with numerous small *petechial hemorrhages.*
- These small pinpoint petechial hemorrhages appear on the cortical surface from rupture of arterioles or glomerular capillaries.

On Histology :

- Two distinct vascular lesions are seen :

Fibrinoid necrosis

- It affects the *arterioles* and is characterized by infiltration of arteriolar walls with eosinophilic material including fibrin, thickening of vessel walls and occasionally, an inflammatory infiltrate (necrotizing arteriolitis).

Hvperplastic arteriolitis

- This affects the *interlobular arteries* and *arterioles.*
- There is concentric hyperplastic proliferation of the smooth muscles together with fine concentric layering of collagen to form a hyperplastic arteriolitis (Onion skin lesion).

290. Primary Membranous Nephropathy has antibodies against ?

a) Phospholipase Al receptor

b) Phospholipase A2 receptor

c) Phospholipase A3 receptor

d) Phospholipase A4 receptor

Correct Answer - B

Ans. is 'b' i.e., Phospholipase A2 receptor

Primary Membranous Nephropathy

- Primary (also called idiopathic) membranous nephropathy is considered to be an *autoimmune disease linked to certain HLA alleles such as HLA-DQA1 and caused in most cases by antibodies to a renal autoantigen.*
- In many adult cases the autoantigen is the phospholipase A receptor.
- The lesions bear a striking resemblance to those of experimental Heymann nephritis, which, as you might recall, is induced by antibodies to the megalin antigenic complex present in the rat podocyte, which is the antigenic counterpart of the human phospholipase A2 receptor.

291. Salt loosing nephropathy seen in

a) Amyloidosis

b) Lupus nephritis

c) Post streptococcal glomerulonephritis

d) Interstitial nephritis

Correct Answer - D
Ans. is 'd' i.e., Interstitial nephritis
Tubulo-interstitial diseases (interstitial nephritis) are characterized by salt wasting, therefore are also called salt-wasting nephritis.

292. Nutmeg liver seen in ?

a) Alcoholic liver disease

b) Chronic venous congestion

c) Hepatoma

d) Secondary carcinoma deposits in liver

Correct Answer - B

Ans. is 'b' i.e., Chronic venous congestion

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.

293. Risk factor in cholangiocarcinoma ?

a) Pancreatitis

b) Caroli disease

c) Pyelonephritis

d) Ulcerative colitis

Correct Answer - B
Ans. is 'b' i.e., Caroli disease
Cholangiocarcinoma

- Cholangiocarcinoma is malignancy of the biliary tree, arising from bile ducts within or outside the liver.
- Risk factors :- All risk factors for cholangiocarcinomas cause chronic inflammation and cholestasis, which presumably promote occurrence of somatic mutations or epigenetic alterations in cholangiocytes.
- *Primary sclerosing cholangitis.*
- *Hepatolithiasis.*
- *Congenital fibropolycystic disease of the biliary system (caroli disease, choledochal cyst).*
- *Hepatitis B and C.*
- *Exposure to thorotrast.*
- *Opisthorchissinensis and clonorchis infection.*

294. Celiac sprue is associated with ?

a) HLA DQ 1

b) HLA DQ2

c) HLA DQ3

d) HLA DQ4

Correct Answer - B
Ans. is 'b' i.e., HLA DQ2
. Celiac disease is a chronic malabsorption syndrome due to intestinal hlpersensitivity to gliadin, component of gluten in wheat, oat, barely and rye.
o Strongest association of coeliac disease is seen with HlA-DQ2followed by H2A-DQ8. Other HLA types (8& DR3 and, DR7) have also been associated.
. Coeliac disease may be associated with dermatitis herpetiformis

295. Characteristic histopathology finding in Whipples disease is ?

a) PAS positive macrophages and rod shaped bacilli in lamina propria

b) Shortened thickened villi with increased crypt depth

c) Blunting and flattening of mucosal surface and absent villi

d) Mononuclear infiltration at base of crypts

Correct Answer - A

Ans. is 'a' i.e., PAS positive macrophages and rod shaped bacilli in lamina propria

- *The hallmark of Whipple's disease is a small intestinal mucosa laden with distended macrophages in the lamina propria- the macrophages contain periodic acid-schiff (PAS) positive granules and rod shaped bacilli by electron microscopy.*
- Three forms of Malabsorption Syndromes are often asked and the basic understanding of these is able to exclude a large number of questions.

296. Most common cause of primary hyperpara-thyroidism -

a) Hyperplasia

b) Solitary Adenoma

c) Carcinoma

d) Multiple adenomas

Correct Answer - B
Answer- B. Solitary Adenoma

- Parathyroid adenoma (85% to 95%)

297. Hurthle cells seen in ?

a) Papillary carcinoma

b) Hashimoto Thyroiditis

c) Granulomatous thyroiditis

d) Thyroglossal cyst

Correct Answer - B
Ans. is `b' i.e., Hashimoto Thyroiditis
Pathological features of Hashimoto's thyroiditis
1. Cross features

- *Diffuse symmetrically enlarged thyroid*
- Although the gland is symmetrically enlarged, the accentuation of lobulations may make the gland appear lobular on gross examination.
- *Capsule is intact*
- Cut surface is pale, yellow firm and lobulated.

2. Microscopic features

- *Atrophy of thyroid follicles (atrophic follicles)*
- *Extensive lymphoplasmocytic infiltrate with abundant small lymphocytes and plasma cells* with *destruction of follicles.*
- *Oncocytic metaplasia (Hurthle cell metaplasia)* → The surviving follicular epithelial cells are commonly transformed into large cells with abundant pink cytoplasm and are known as *Hurthle cells.*
- *Oncocytic metaplasia (Hurthle cell metaplasia) is also known "oxyphilic change"* in epithelial cells and is considered the *hallmark of Hashimoto's thyroiditis.*
- Varying degree of fibrosis and foci of squamous metaplasia within atrophic follicles.
- Interstitial connective tissue is increased and may be abundant.

298. Which of the following is not involved in MEN II syndrome ?

a) Pituitary tumor

b) Medullary carcinoma of thyroid

c) Pheochromocytoma

d) Parathyroid adenoma

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

299. Psammoma bodies are seen in all the following except ?

a) Malignant mesothelioma

b) Somatostatinoma

c) Prolactinoma

d) Follicular carcinoma of thyroid

Correct Answer - D

Ans. is 'd' i.e., Follicular carcinoma of thyroid

Psammoma bodies can be seen in :?

- Papillary carcinoma of thyroid.
- Renal cell carcinoma (papillary type)
- Serous cystadenoma of ovary
- Meningioma
- Malignant mesothelioma (Peritoneal & pleural)
- Somatostatinoma (Pancreas)
- Prolactinomam (Pituitary)
- Endometrial papillary serous cystadenocarcinoma

300. Anti thyroglobulin antibodies seen in

a) Hashimoto thyroiditis

b) Graves disease

c) De quervain thyroiditis

d) Subacute lymphocytic thyroiditis

Correct Answer - A
Ans. is 'a' i.e., Hashimoto thyroiditis
Antithyroglobulin antibody
Antibody directed against a component of colloid
Antimicrosomal antiboily
AntibODY AGAINST TSH receptor

301. Thymic hyperplasia is seen in ?

a) Thymoma

b) Thymic lymphoma

c) Myasthenia gravis

d) Scleroderma

Correct Answer - C
Ans. is 'c' i.e., Mysthenia gravis
Thymic hvperplasia

- The term thymic hyperplasia usually applies to the appearance of B-cell germinal centers within the thymus, a finding that is referred to *as thymic follicular hyperplasia.*
- Such B-cell follicles are present in only small numbers in the normal thymus.
- It can occur in a number of chronic inflammatory and immunologic states, but it is most frequently encountered in myasthenia gravis (65% to 75% of cases).
- Similar thymic changes are sometimes encountered in Graves disease, systemic lupus erythematosus, scleroderma, rheumatoid arthritis, and other autoimmune disorders.

302. Fibroma belongs to ?

a) Germ cell tumor

b) Sex cord stromal tumor

c) Surface epithelial stromal tumors

d) Metastatic tumors from non ovarian primary

Correct Answer - B
Ans. is 'b' i.e., Sex cord stromal tumor
granulosa-theca cell tumor
. Sertoli-leydig cell tumor
Sex cord stromal tumor

303. All are benign conditions except ?

a) Fibroadenoma

b) Cystosarcomaphyllodes

c) Pagets disease of nipple

d) Galactocele

Correct Answer - C
Ans. is 'c' i.e. Pagets disease of nipple
Benign breast disorder classification :?
a) Congenital disorders

- Inverted nipple
- Supernumerary breasts/nipples
- Non-breast disorders
- Tietze's disease (costochondritis)
- Sebaceous cysts and other skin conditions

b) Injury
c) Inflammation/infection
d) ANDI (aberations of normal differentiation and involution):

- Cyclical nodularity and mastalgia
- Cysts

e) Fibroadenoma
f) Duct ectasia/periductal mastitis
g) Phyllodes tumor (CystosarcomaPhyllodes)
h) Pregnancy-related

- Galactocele
- Puerperal abscess

304. Tumor with appearance and consisteny of grape like clusters is ?

a) Embryonal rhabdomyosarcoma

b) Embryonal cell carcinoma

c) Adenocarcinoma

d) Clear cell carcinoma

Correct Answer - A
Ans. is 'a' i.e., Embryonal rhabdomyosarcoma
Carcinosarcoma of uterus
Carcinosarcomas consist of endometrial adenocarcinoma in which malignant sarcomatous (stromal) differentiation takes place.

305. Risk factor of CA cervix ?

a) Smoking

b) Sex at 25 yrs

c) Decreased parity

d) Single sexual partner

Correct Answer - A

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

Risk Factors associated with carcinoma cervix are as follows :?

- HPV infection - HPV 16: Squamous cell carcinoma, HPV 18: Adenocarcinoma o Early coitarche
- Increased parity
- Multiple sexual partners
- Smokers
- Lack of regular PAP smear screening
- Long term use of combined oral contraceptive pills

306. Early age of sex is risk factor for

a) Carcinoma cervix

b) Carcinoma vulva

c) Carcinoma vagina

d) Carcinoma ovary

Correct Answer - A

Ans. A. Carcinoma cervix

- Early Coitarche (early age of first intercourse) is a risk factor for carcinoma cervix.

307. Most common cause of inherited peripheral neuropathy is ?

a) Chartcot - Marie - Tooth disease

b) Hereditary neuropathy with pressure palsy

c) Familial amyloid polyneuropathy

d) Hereditary sensory neuropathy

Correct Answer - A
Ans. is 'a' i.e., Chartcot - Marie - Tooth disease
Charcot-Marie-Tooth (CMT) disease :?

- This is the most common of the inherited peripheral neuropathies, affecting up to 1 in 2500 people.
- This is a nerve conduction disease.
- Affected individuals are heterozygous for duplication of a small region of chromosome 17 (17p12).
- It is an autosomal dominant disorder

308. Not seen in children

a) Neuroblastoma

b) Retinoblastoma

c) Hepatoblastoma

d) Seminoma

Correct Answer - D
Answer- D. Seminoma
Childhood malignancies are

- Leukemia (AML' ALL)
- Brain tumors
- Soft tissue sarcoma → Rhabdomyosarcoma
- Lymphoma
- Neuroblastoma
- Wilm's tumor
- Bone tumor
- Retinoblastoma
- Hepatoblastoma

309. Cholemicnephrosis seen in ?

a) Addison's disease

b) Hemochromatosis

c) Hemochromatosis

d) Obstructive jaundice

Correct Answer - D
Ans. is 'd' i.e., Obstructive jaundice
<u>CholemicNephrosis 'Jaundice related Neuhropathyl</u>

- Cholemicnephrosis is used to describe the renal failure in patients with obstructive jaundice, particularly after renal transplantation.
- Diagnosis is made on light microscopy by presence of typical bilirubin casts.
- Altered hemodynamics and bile toxicity to tubular epithelial cells is the probable cause for renal failure in such patients.
- Patients usually have hepatorenal syndrome, reduced glomerular filtration rate and increased concentration of bile salts and bilirubin in urine.

310. Gleason's grading system is for ?

a) Carcinoma testis

b) Carcinoma colon

c) Carcinoma thyroid

d) Carcinoma prostate

Correct Answer - D
Ans. is `d' i.e., Carcinoma prostate
The Gleason Grading system is used to help evaluate the prognosis of men with prostate cancer.

311. ATM gene is located on ?

a) Chromosome 11

b) Chromosome 7

c) Chromosome 5

d) Chromosome 8

Correct Answer - A
Ans. is 'a' i.e., Chromosome 11
Ataxia-Telangiectasia
Is an autosomal recessive disorder characterized by an ataxic-dyskinetic syndrome beginning in early childhood, with the subsequent development of telangiectasias in the conjunctiva and skin, along with immunodeficiency. o The ataxia-telangiectasia mutated *(ATM)* gene located on chromosome 11q22-q23 encodes a kinase with a critical role in orchestrating the cellular response to double-stranded DNA breaks.

312. Chronic Right Heart Failure the appearance of liver ?

a) Congested

b) Shrinking

c) Fatty liver

d) Nodular

Correct Answer - A

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

- Mallory bodies are *eosinophilic intracytoplasmic* inclusion bodies which are composed predominantly of *keratin intermediate filaments.*
- They are also known as *alcoholic hyaline.*
- These inclusions are characteristic but not specific feature of alcoholic liver disease, as they are also seen in other conditions.

313.

Healthy Human volunteers part of which clinical trial phase?

a) I

b) II

c) III

d) IV

Correct Answer - A
Ans. is 'a' i.e., I
CLINICAL TRAILS
Before a new drug comes to the market, it is extensively tested in animals and invitro studies for safety and efficacy. It the drug is found to be promising in these studies, an application called IND (Investigational New Drug) is filed with United States food and drug administration (FDA), which is main regulatory authority. If the permission is granted, then drug is tested in humans. This testing is called clinical trial. These are divided into four phases.

314. Micro dosing studies done in which phase of clinical trials?

a) 0

b) 1

c) 2

d) 3

Correct Answer - A
Ans. is 'a' i.e., 0

- Phase 0 - Microdosing strategy in clinical trials
- Drug development is an activity that is long, complex and expensive.
- The concept of microdosing involves the use of extremely low, nonpharmacologically active doses of a drug to define the pharmacokinetic profile of the medication in human subjects.
- Microdosing, thus, appears as a new viable concept in the 'toolbox' of the drug development activity.

315. True about orphan drug is ?

a) Prevention of rare disease or condition

b) No aid is offered to pharmacological companies for developing orphan drugs

c) Rifabutin is not an orphan drug

d) Treatment of common disease in a resourceful country

Correct Answer - A

Ans. is 'a' i.e., Prevention of rare disease or condition

Orphan drug

- Drugs or biological products for *diagnosis/ treatment/ prevention of a rare disease or condition or a more common* disease (endemic only in resource poor countries), for which there is no reasonable expectation that the cost of developing and marketing it will be recovered from the sales of that drug.
- Sodium nitrite, fomepizole, liposomal amphotericin B, miltefosine, rifabutin, succimer, somatropin, digoxin immune Fab, liothronine are some of the orphan drugs.
- Governments in developed countries provides tax benefits and other incentives to pharmaceutical companies for developing and marketing orphan drugs.

316. Drugs or biological products for diagnosis, treatment or prevention of a rare disease or condition are called?

a) Orphan drugs

b) Rare drugs

c) Extinct drugs

d) Essential drugs

Correct Answer - A

Ans. is 'a' i.e., Orphan drugs

Orphan drugs

- These are drugs or biological products for diagnosis/prevention of a rare disease or condition, or a more common disease (endemic only in resource poor countries) for which there is no reasonable expectation that the cost of developing and marketing it will be recovered from the sales of that drug.
- The list includes sodium nitrite, fomepizole, liposomal amphotericin B, miltefosine, rifabutin, succimer, somatropin, digoxin immune Fab (digoxin antibody), liothyronine (T_3) and many more.
- Though these drugs may be life saving for some patients, they are commercially difficult to obtain as a medicinal product.
- Government in developed countries offer tax benefits and other incentives to pharmaceutical companies for developing and marketing orphan drugs (e.g. Orphan Drug Act in USA).

317. Bioavailability ?

a) Area of oral/ area of IV

b) Area of IV/ area of oral

c) Area of oral/ area of IV x 100

d) Area of IV/ area of oral x 100

Correct Answer - C

Ans. is 'c' i.e., Area of oral/ area of IV x 100

<u>Bioavailability</u>

- Refers to the rate and extent of absorption of drug from a dosage form as determined by its concentration-time curvein blood or by its excretion in urine.
- It is the measure of fraction (F) of drug, which reaches the systemic circulation in unchanged form.
- Bioavailability of a drug given by i.v.route is 100%. So the bioavailability of drug dosage form is determined by comparing it with the i.v.route.

318. All are true for sublingual route except ?

a) Escape first pass metabolism

b) All drugs can be given

c) Action can be terminated any time

d) Rapid absorption

Correct Answer - B

Ans. is 'b' i.e., All drugs can be given

Sublingual route of administration

- The tablet or pellet containing the drug is placed under the tongue or crushed in the mouth and spread over the buccal mucosa.
- Only the lipid soluble and non-irritating drugs can be administered by this route
- Absoption is rapid and action can be produced in minutes
- Action can be easily terminated by spitting the drug after the desired effect is achieved.
- Liver is bypassed with this route, thus the drugs with high first pass metabolism can be easily given by this route.
- Drugs given by this route are: GTN, buprenorphine, desamino-oxytocin.

319. Liposomes are used for all except?

a) Amphotericin-B

b) Doxorubicin

c) Propranolol

d) Vincristine

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

320. Drug highly distributed to body fat ?

a) Digoxin

b) Heparin

c) Mannitol

d) Thiopentone

Correct Answer - D

Ans. is 'd' i.e., Thiopentone

Redistribution of drugs

- Highly lipid soluble drugs get initially distributed to organs with high blood flow i. e. brain, heart, kidney etc.
- Later, less vascular but more bulky tissues take up the drug- plasma concentration falls and the drug is withdrawn from the highly perfused sites.
- If the site of action was in the highly perfused tissues, redistribution results in termination of the action of drug.
- Greater the lipid solubility of the drug faster is its redistribution.
- The drugs with high lipid solubility and faster redistribution are - thiopentone and diazepam.

321. True about zero order kinetics ?

a) Most of the drugs follow zero order kinetics

b) $T^{1/2}$ of drug elimination remains constant

c) Constant amount of drug eliminated per unit time

d) Rate of elimination is dependent on plasma concentration

Correct Answer - C
Ans. is 'c' i.e., Constant amount of drug eliminated per unit time

322. True about t 1/2 ?

a) Time required to reduce the plasma conc. to half

b) Zero order kinetics - t 1/2 remains constant

c) First order kinetics - t 1/2 increases

d) Complete drug elimination occurs in 2-3 t 1/2

Correct Answer - A

Ans. is 'a' i.e., Time required to reduce the plasma conc. to half

Half life PA

- *It is the time required to reduce the plasma concentration to half (50%) of the original value.*
- It determines the dosing interval and time required to reach the steady state.
- It is a *secondary* pharmakokinetic parameter derived from two primary parameters, volume of distribution (Vd) and clearance (CL).

323. A steady state plasma concentration is achieved in how many hours, if half life of drug is 40 hrs. ?

a) 140hrs

b) 160hrs

c) 180hrs

d) 200 hrs

Correct Answer - D
Ans. is 'd' i.e., 200 hrs
For all practical purposes, after 5 tl?2 the amount of drug in the body will be constant and the plasma concentration will be at a plateau.
Thus for a drug with T1/2 40 hrs to reach the steady state plasma concentration 5 T1/2s will be required i. e. 5 X 40 hrs = 200 hrs.
Steady state plasma concentration
After *5* t1/2, nearly complete drug is eliminated from the body
If a constant dose of drug is repeated before 5 V/2, the concentration in blood will be higher, because some remnant of the previous dose will be present in the body.
So, when a drug is infused at a constant rate the plasma concentration rises until a state is reached at which the rate of administration of drug to the body is exactly equal to the rate of elimination.
This is called the steady state → when it is attained the amount of drug in the body remains constant i.e. the plasma concentration is on a plateau → plateau principal of drug accumulation.
If a drug is administered by a constant rate the time to reach steady state depends only on the t1/2.
With passage of each V/2 period of time, the plasma concentration

With passage of each ½ period of time, the plasma concentration rises by half the difference between the current concentration and the ultimate steady state (100%) concentration.

324. Best mode to study response of wide number of drugs in population is ?

a) Dose Response Curve

b) Lethal dose response curve

c) Absorbed dose and Response curve

d) None of the above

Correct Answer - A
Ans. is 'a' i.e., Dose Response Curve
Dose-response relationship
When a drug is administered systemically, the dose-response relationship has two components :
1. Dose-plasma concentration relationship (DPCR)
2.Plasma concentration - response relationship (PCRR)

325. About biotransformation not true ?

a) Active metabolite generation

b) Polar to less polar

c) Less polar to more polar

d) Generate active drug from prodrug

Correct Answer - B
Ans. is 'b' i.e., Polar to less polar

326. Which of the following drug is given intranasally?

a) Desmopressin

b) Ribavarin

c) Amiloride

d) Oseltamivir

Correct Answer - A

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

Drugs which can be given by intranasal route are :-

- Desmopressin
- Liposomes
- Butorphanol
- Zanamivir
- Calcitonin

327. Drug distribution in tissue true is all except ?

a) Chloroquine - eye

b) Ephedrine - bone

c) Digoxin - skeletal muscle

d) Minocycline - adipose tissue

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

328. Phase 1 biotransformation includes ?

a) Reduction

b) Acetylation

c) Sufate conjugation

d) Methylation

Correct Answer - A

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

<u>Types of biotransformation reactions</u>

- Biotransformation reactions (metabolism) of drugs can be classified :

A. Non-synthetic (phase I) reactions

- Metabolism brings about a change in the drug molecule by :

1. *Oxidation*
2. *Hydrolysis*
3. *Decyclization*
4. *Reduction*
5. *Cyclization*

- The new metabolite may retain biological activity or it may be an inactive metabolite.
- *Oxidation is the most important metabolizing reaction.*
- *The most important enzyme for oxidation reaction is cytochrome P450.*

B. Synthetic (phase H or conjugation) reaction

- Metabolism involves union of the drug with one of several polar (water-soluble) endogenous molecules that are products of intermediary metabolism, to form a water-soluble conjugate which is readily eliminated by kidney or, if the molecular weight exceeds 300, in the bile.
- Phase II metabolism almost invariably terminates biological activity,

i.e. metabolites are usually inactive. o Reactions are

1. *Acetylation*
2. *Glutathione conjugation*
3. *Neucleotide synthesis*
4. *Glucuronide conjugation*
5. *Sulfate conjugation*
6. *Glycine conjugation*
7. *Methylation*

329. LD 50/ ED 50 is ?

a) Therapeutic index

b) Bioavailability

c) Potency

d) Efficacy

Correct Answer - A

Ans. is 'a' i.e., Therapeutic index

Therapeutic index

- Drugs usually have more than one action.
- The maximal response for different action of a drug may be different ie the DRCs (Dose response curves) for different effects of a drug may be different.
- The extent of separation of DRCs of a drug for different effects is a measure of its selectivity, e.g. the DRCs for bronchodilatation and cardiac stimulation are quite similar in case of isoprenaline but far apart in case of salbutamol - the latter is more selective.
- The gap between the therapeutic effect DRC and the adverse effect DRC defines the safety margin or the therapeutic index.

330. Following is true about inverse agonist ?

a) Affinity + Intrinsic activity +

b) Affinity + Intrinsic activity 0

c) Affinity - Intrinsic activity ?

d) Affinity + Intrinsic activity -

Correct Answer - D
Ans. is 'd' i.e., Affinity + Intrinsic activity -
Receptors are specific binding site with functional correlate.
In relation to action through receptors, two terms are important.

331. Which of the following is a prodrug?

a) Neostigmine

b) Captopril

c) Esmolol

d) Enalapril

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

332. Therapeutic drug monitoring is used for all except?

a) Drugs with low safety margin

b) In case of poisoning

c) To check patient compliance

d) To check the therapeutic effects of drug

Correct Answer - D

Ans. is d i.e., To check the therapeutic effects of drug

Therapeutic drug monitoring is Particularly useful in following situations:

I. Drugswith lowsafetymargin -

- Tricyclic antidePressants
- Digoxin
- Anticonvulsants
- Antiarrythmics
- Theophylline
- Aminoglycoside antibiotics
- Lithium

333. Exocytic release of ACH is blocked by ?

a) Hemicholium

b) Botulinum

c) Alpha bungarotoxind

d) Vesamicol

Correct Answer - B

Ans. is 'b' i.e., Botulinum

ACETYLCHOLINE SYNTHESIS AND RELEASE

- Choline is actively taken up by the axonal membrane by Na+; choline cotransporter. *(Rate limiting step).* This step is blocked by Hemicholinium.
- Choline is acetylated with the help of ATP and coenzyme 'A' by the enzyme *choline acetyl transferase* present in the axoplasm.

334. True about propranalol is ?

a) Metabolism of propranolol is not dependent on the hepatic blood flow

b) Undergoes extensive first pass metabolism

c) Hydroxylated product of propranolol has alpha blocking property

d) Propranolol is lipophobic

Correct Answer - B

Ans. is 'b' i.e., Undergoes extensive first pass metabolism

Propranolol metabolism

- It is well absorbed after oral administration.
- It has low bioavailability due to high first pass metabolism in liver.
- It is lipophilic and easily penetrates into brain.
- Metabolism of propranolol is dependent on the hepatic blood flow.
- Bioavailability of propranolol is increased when it is taken with food.
  o Hydroxylated product of propranolol has beta blocking activity.
- Metabolites are excreted in urine mostly as glucuronides.
- More than 90% of propranolol is bound to plasma proteins.

335. Drug with beta adrenergic blocking, with antioxidant, with calcium channel blocking, with alpha 1 antagonist activity is ?

a) Esmolol

b) Carvedilol

c) Nebivolol

d) Levobunolol

Correct Answer - B

Ans. is 'b' i.e., Carvedilol

Carvedilol

- Carvedilol is a β_1 + β_2 + α_1 adrenoceptor blocker with α : β blocking property of 1 : 9.
- It has *antioxidant* and antimitotic property.
- *It produces peripheral vasodilation due to* α-1 *blockade as well as calcium channel blockade (direct effect).*
- It is used in hypertension and *angina.*
- It is used as *cardioprotective in CHF.*
- t1/2 is 2-8 hrs.
- It is eliminated through liver and kidney.
- It causes *orthostatic hypotension.*

336. Alpha la adrenergic blocker giving symptomatic relief in BPH?

a) Tamsulosin

b) Prazosin

c) Oxazocin

d) Dolazoline

Correct Answer - A
Tamsulosin REF: KDT 7th ed p. 135, Goodman Gillman's 11th ed p. 173
Tamsulosin:
This unselective $alpha_i lalpha_m$ blocker has been found to be as effective as terazocin for symptomatic control of BPH
Prazosin: blocks all subtypes of alpha receptors equally, used for symptomatic control of BPH Terazosin: long acting, more popular for BPH due to single daily dose

337. Digitalis acts in atrial fibrillation by

a) Increasing AV node refractoriness

b) Decreasing atrial contractility

c) Inhibiting Na^+ K^+ ATPase pump

d) Inhibiting Na^+ H^+ ATPase pump

Correct Answer - A

Ans. is 'a' i.e., Increase in A.V. node refractoriness

Digitalis in arrhythma

- Digitalis is the drug of choice for controlling ventricular rate in atrial fibrillation (AF) with heart failure.
- Digitalis reduces the ventricular rate in AF by decreasing the number of impulses that are able to pass down the A-V node and bundle of His.
- It increases effective refractory period-ERP refractoriness) of A-V node by direct, vagomimetic and antiadrenergic action - the minimum interval between consecutive impulses that can successfully traverse the conducting tissue is increased.
- A degree of A-V block is naturally established in AF.
- Because of the relatively long ERP of A-V node, many atrial impulses impinge on it while it is still refractory; others falling early in the relative refractory period get extinguished by decremental conduction - These concealed impulses leave upper margin of A-V node refractory for a further period.
- Thus, any influence which increases atrial rate in AF (e.g. digitalis), by itself reduces ventricular rate.

338. Mechanism of action of thiazides is by ?

a) Inhibiting Na+/Cl- symporter in DCT

b) Inhibiting Na+/Cl- symporter in PCT

c) Inhibiting Na+K+2Cl- in ascending limb of loop of henle

d) Inhibiting Na+K+2Cl- in descending limb of loop of henle

Correct Answer - A
Ans. is 'a' i.e., Inhibiting Na^+/Cl^- symporter in DCT

339. Inotropic drugs acts on which receptors: *March 2013*

a) Alpha1

b) Alpha2

c) Beta1

d) Beta2

Correct Answer - C
Ans. C i.e. Beta1
Beta adrenergic receptors

- Activation of beta-1 receptors induces positive inotropic, chronotropic output of the cardiac muscle, leading to increased heart rate and blood pressure, secretion of ghrelin from the stomach, and renin release from the kidneys.
- Activation of beta-2 receptors induces smooth muscle relaxation in the lungs, gastrointestinal tract, uterus, and various blood vessels. Increased heart rate and heart muscle contraction is also associated with the beta-2 receptors.
- Beta-3 receptors are mainly located in adipose tissue. Activation of the beta-3 receptors induces the metabolism of lipids.

340. Effect of beta blocker's on heart are all of the following except:
September 2011

a) Decrease in heart rate

b) Decreases duration of systole

c) Decreases cardiac output

d) Precipitates heart failure

Correct Answer - B
Ans. B: Decreases duration of systole
In the presence of increased sympathetic tone, beta blocker reduces the automaticity and prevents rise in heart rate; reduces myocardial contractility, cardiac output and stroke work; slows AV conduction, reduces myocardial oxygen demand and improves exercise tolerance

- Beta blockers/Beta-adrenergic blocking agents/Beta-adrenergic antagonists/Beta-adrenoreceptor antagonists/Beta antagonists
- They are particularly for the management of cardiac arrhythmias, cardioprotection after myocardial infarction, and hypertension.
- As beta adrenergic receptor antagonists, they diminish the effects of epinephrine (adrenaline) and other stress hormones.
- Beta blockers block the action of endogenous catecholamines epinephrine (adrenaline) and norepinephrine (noradrenaline) in particular, on beta-adrenergic receptors, part of the sympathetic nervous system which mediates the "fight or flight" response.
- There are three known types of beta receptor, designated beta-1, beta-2 and beta-3 receptors.
- Beta-1-adrenergic receptors are located mainly in the heart and in

the kidneys.

- Beta-2-adrenergic receptors are located mainly in the lungs, gastrointestinal tract, liver, uterus, vascular smooth muscle, and skeletal muscle.
- Beta-3-adrenergic receptors are located in fat cellsStimulation of beta-1 receptors by epinephrine induces a positive chronotropic and inotropic effect on the heart and increases cardiac conduction velocity and automaticity.Stimulation of beta-1 receptors on the kidney causes renin release.Stimulation of beta-2 receptors induces smooth muscle relaxation, induces tremor in skeletal muscle, and increases glycogenolysis in the liver and skeletal muscle.
- Stimulation of beta-3 receptors induces lipolysis.
- Beta blockers inhibit these normal epinephrine-mediated sympathetic actions, but have minimal effect on resting subjects.That is, they reduce excitement/physical exertion on heart rate and force of contraction, and also tremor and breakdown of glycogen, but increase dilation of blood vessels and constriction of bronchi.It is therefore expected that non-selective beta blockers have an antihypertensive effect.Antianginal effects result from negative chronotropic and inotropic effects, which decrease cardiac workload and oxygen demand.
- Negative chronotropic properties of beta blockers allow the lifesaving property of heart rate control.
- The antiarrhythmic effects of beta blockers arise from sympathetic nervous system blockade - resulting in depression of sinus node function and atrioventricular node conduction, and prolonged atrial refractory periods.
  Sotalol, in particular, has additional antiarrhythmic properties and prolongs action potential duration through potassium channel blockade.Blockade of the sympathetic nervous system on renin release leads to reduced aldosterone via the renin angiotensin aldosterone system with a resultant decrease in blood pressure due to decreased sodium and water retention
- Referred to as intrinsic sympathomimetic effect, this term is used particularly with beta blockers that can show both agonism and antagonism at a given beta receptor, depending on the concentration of the agent (beta blocker) and the concentration of

the antagonized agent (usually an endogenous compound such as norepinephrine).

- Some beta blockers (e.g. oxprenolol, pindolol, penbutolol and acebutolol) exhibit intrinsic sympathomimetic activity (ISA).
- These agents are capable of exerting low level agonist activity at the beta-adrenergic receptor while simultaneously acting as a receptor site antagonist.
  These agents, therefore, may be useful in individuals exhibiting excessive bradycardia with sustained beta blocker therapy.Agents with ISA (intrinsic sympathomimetic acitivity) are not used in post-myocardial infarction as they have not been demonstrated to be beneficial.
- They may also be less effective than other beta blockers in the management of angina and tachyarrhythmia
  Some beta blockers (e.g. labetalol and carvedilol) exhibit mixed antagonism of both beta- and alpha-1-adrenergic receptors, which provides additional arteriolar vasodilating actionThey can also be used to treat glaucoma because they decrease intraocular pressure by lowering aqueous humor secretion.
- Non-selective agents
  - Alprenolol
  - Bucindolol
  - Carteolol
  - Carvedilol (has additional a-blocking activity)
  - Labetalol (has additional a-blocking activity)
  - Nadolol
  - Oxprenolol
  - Penbutolol (has intrinsic sympathomimetic activity)
  - Pindolol (has intrinsic sympathomimetic activity)
  - Propranolol
  – Timolol
- Beta-I-Selective agents
  Acebutolol (has intrinsic sympathomimetic activity)
  – Atenolol
  – Betaxolol
  - Bisoprolol
  - Celiprolol

Esmolol

- Metoprolol
- Nebivolol

- Beta-2-Selective agents
- Butaxamine (weak alpha-adrenergic agonist activity) - No common clinical applications.
- Pharmacological differences
- Agents with intrinsic sympathomimetic action (ISA)
- Acebutolol, carteolol, celiprolol, mepindolol, oxprenolol, pindolol, labetalol.
- Agents with greater aqueous solubility (hydrophilic beta blockers)
- Atenolol, celiprolol, nadolol, sotalol
- Agents with membrane stabilizing effect
- Acebutolol, betaxolol, pindolol, propranolol
- Agents with antioxidant effect
- Carvedilol, nebivolol
- Indication differences
- Agents specifically indicated for cardiac arrhythmia
- Esmolol, sotalol, landiolol
- Agents specifically indicated for congestive heart failure
- Bisoprolol, carvedilol, sustained-release metoprolol, nebivolol
- Agents specifically indicated for glaucoma
- Betaxolol, carteolol, levobunolol, metipranolol, timolol
- Agents specifically indicated for myocardial infarction
- Atenolol, metoprolol, propranolol
- Agents specifically indicated for migraine prophylaxis
- Timolol, propranolol
- Propranolol is the only agent indicated for control of tremor, portal hypertension, and esophageal variceal bleeding, and used in conjunction with alpha-blocker therapy in phaeochromocytoma
- Indications for beta blockers include:

Angina pectoris

- Atrial fibrillation
- Cardiac arrhythmia
- Congestive heart failure
- Essential tremor
- Glaucoma

- Hypertension
- Migraine prophylaxis
- Mitral valve prolapse

Myocardial infarction

Phaeochromocytoma, in conjunction with alpha-blocker

- Postural orthostatic tachycardia syndrome
- Symptomatic control (tachycardia, tremor) in anxiety and hyperthyroidism

– Acute aortic dissection

- Hypertrophic obstructive cardiomyopathy
- Marfan syndrome (treatment with propranolol slows progression of aortic dilation and its complications)
- Prevention of variceal bleeding in portal hypertension
- Social anxiety disorder and other anxiety disorders

341. NK receptor antagonist that prevents vomiting ?

a) Bosutran

b) Gramisetron

c) Ondansetran

d) Aprepitant

Correct Answer - D

Ans. is d i.e., Aprepitant

Aprepitant

- Aprepitant is an antiemetic substance that belongs to a class of drugs called substance P antagonists.
- The compound mediates its effect by blocking the neurokinim 1 (NK1) receptor.
- Certain regions of brain have high expression of NK1 receptors. Substance P acts on these receptors and is *responsible for chemotheraphy induced nausea and vomiting. Aprepitant acts as a substance P antagonist on NK1 receptors.*
- Aprepitant has little or no affinity for Serotonin 5-HT3, dopamine or corticosteroid receptors.
- *Aprepitant crosses the blood brain barrier.*
- Aprepitant is used for *chemotherapy induced nausea & vomiting (CINV), and post- operative nausea & vomiting (PONY).*
- After absorption aprepitant is bound extensively to plasma proteins (>95%); *it is metabolized avidly, primarily by hepatic CYP 3A4* and is excreted in the stools.
- Aprepitant is contraindicated in patients on cisapride or pimozide, in which life threatening QT prolongation has been reported.
- The recommended adult dose of a prepitant is 125 mg administered

1 hour before chemotherapy on day one, followed by 8 mg once daily in the morning on day 2 and 3 of the treatment regimen.

342. An antidepressant found to be associated with tardive dyskinesia and neuroleptic malignant syndrome is -

a) Fluoxetine

b) Amineptin

c) Amoxapine

d) Trazodone

Correct Answer - C
Ans. is 'c' i.e., Amoxapine
o Amoxapine is the only antidepressant which *blocks* D_2 *receptors* along with inhibition of NA reuptake ----> has mixed antidepressant + neurolepic property.
o Due to blockade of D, receptors it causes extrapyramidal side effects ---> Parkinsonism, *Tardive dyskinesia,* Akathesia, *neuropeptic malignant syndrome*

343. An anxiolytic benzodiazepine which is also antidepressant : *September 2007*

a) Lorazepam

b) Oxazepam

c) Alprazolam

d) Chlordiazepoxid

Correct Answer - C
Ans. C: Alprazolam
Alprazolam is approved for the short-term treatment of panic disorder, with or without agoraphobia. Alprazolam is very effective in the short-term symptomatic relief of moderate to severe anxiety, essential tremor, and panic attacks.
Alprazolam is indicated for the management of anxiety disorders or the short-term relief of symptoms of anxiety. Alprazolam is recommended for the short-term treatment of severe acute anxiety. Alprazolam is sometimes prescribed for anxiety with associated depression.
The antidepressant effects of alprazolam may be due to its effects on beta-adrenergic receptors. Other benzodiazepines are not known to have antidepressant activity.

344. Cochlear involvement more than vestibular involvement drug ?

a) Sisomycin

b) Kanamycin

c) Gentamycin

d) Streptomycin

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

345. Following are the glycopeptide antibiotics except?

a) Teicoplanin

b) Daptomycin

c) Telavancin

d) Oritavancin

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

346. Longest lag period in bacterial growth is associated with ?

a) Rifampicin

b) INH

c) Streptomycin

d) Ethambutol

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

347. Drug of choice for prevention of infection by animal bite ?

a) Amoxicillin/clavulanate

b) Tetracycline

c) Ciprofloxacin

d) Cotrimazole

Correct Answer - A
Ans. is 'a' i.e., Amoxicillin/clavulanate

348.

Part of ethambutol in RNTCP regime ?

a) Bactericidal + detrimental to semidormant bacilli

b) Bactericidal + detrimental to dormant bacilli,

c) Bactristatic + detrimental to fast multiplying bacilli

d) Bacteristatic + detrimental to slow multiplying bacilli

Correct Answer - C

Ans. is 'c' i.e., Bactristatic + detrimental to fast multiplying bacilli

Ethambutol

- It is selectively bacteriostatic and is active against MAC as well as some other mycobacteria.
- Fast multiplying bacilli are more susceptible
- With the triple drug therapy it hastens the sputum conversion and also helps to prevent the development of resistance (primary purpose of using it).
- It inhibits arabinosyltransferase involved in arabinogalactan synthesis, therby interfering with mycolic acid incorporationin mycobacterial cell wall.

349. Carboxypenicillins true is all except ?

a) Nephrotoxic

b) Sensitive to penicillinase

c) Effective against pseudomonas

d) Platelet aggregation affected

Correct Answer - A

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

Carboxvpenicillins - Carbenicillin:

- It is active against pseudomonas and indole positive proteus.
- Klebsiella and gram positive cocci are unaffected by it
- It is neither penicillinase resistant nor acid resistant.
- It is inactive orally and is rapily excreted in urine in 1 hr.
- At high doses it can cause bleeding by interfering with platelet function due to perturbation of agonists receptors on platelet surface.
- *Carbenicillin indanyl* is an orally active ester of carbenicillin, used for treatment of UTI caused by *pseudomonas* and *proteus.*

350. Which is not a side effect of dapsone ?

a) Hemolytic anemia

b) Myopathy

c) Hepatitis

d) Infectious mononucleosis type syndrome

Correct Answer - B

Ans. is 'b i.e., Myopathy

Adverse effects of dapsone

- The *most common* adverse effect of dapsone is *hemolytic anaemia* (Patients with *G-6-PP deficiency* are more susceptible).
- *Second most common* adverse effect is methemoglobinemia.
- Other side effects are - Nausea, anorexia, headache, paresthesia, drug fever, mental symptoms, rashes, fixed drug eruption, *hypermelanosis (Pigmentation),* phototoxicity, exfoliative dermatitis, *hepatitis, agranulocytosis,* lepra reaction and sulfone syndrome, *infectious mononucleosis like syndrome.*

351. Minimum inhibitory concentration is ?

a) The concentration of antibiotic which kills 99.9% of the bacteria

b) Maximum concentration of an antibiotic which prevents visible growth of a bacterium

c) Minimum concentration of an antibiotic which prevents visible growth of a bacterium

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Minimum concentration of an antibiotic which prevents visible growth of a bacterium

Antimicrobial sensitivity

To estabilish the activity of an antimicrobial agent, microrganisms are tested for their ability to grow in the presence of suitable concentration of drug.

Methods used are ?

1. Disc diffusion method
2. Broth culture with break point

Potency of antimicrobial agents is often referred as M1C.

1. Minimum inhibitory concentration (MIC)

Lowest concentration of an antibiotic which prevents visible growth of a bacterium.

2. *Minimum* bactericidal concentration (MBC)

The concentration of an antibiotic which kills 99.9% of the bacteria.

3. *A small difference between MIC and MBC indicates that the antibiotic is primarily bactericidal, while a large difference indicates bacteriostatic action.*

352. Drug inhibiting the enzyme folate synthatase is ?

a) Sulfonamide

b) Clindamycin

c) Rifampicin

d) Norfloxacin

Correct Answer - A

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

SULFONAMIDES

- Sulfonamides are *bacteriostatic* and act by inhibiting folic acid synthesis by *inhibiting enzyme folate synthatase.*
- 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.*
- Sulfonamides are not effective in presence of pus and tissue extract because - (1) Pus contains purines and thymidine which decrease bacterial requirement for folic acid and (2) Pus is rich in PABA.

Classsification

1. Short *acting* - Sulfadiazine, Sulfisoxaxole, Sulfamethizole, Sulfacystine. *2.Intermediate acting* - Sulfamethoxazole.
2. *Long acting* - Sulfadoxine, Sulfamethopyrazine.
3. *Topical Sulfonamides* - Sulfacetamide sodium, Mafenide, silver sulfadiazine.
4. Sulfonamide *for RA and ulcerative colitis - Sulfasalazine.*

Adverse effects

- *Most common adverse effects are due to hypersensitivity* → Drug fever, Skin rashes, exfoliative dermatitis, Photosensitivity, urticaria, nausea, vomiting and diarrhea - *Katzung 10th/e p. 764.*

- Crystalluria, Hepatitis, hemolysis in G-6-PD deficiency, kernicterus in newborn are other side effects.
- Primary pathwary of metabolism of Sulfonamides is *acetylation. The acetylated derivative is less soluble in acidic urine - may precipitate and cause crystalluria.*

353. Nephotoxic antiviral ?

a) Acyclovir

b) Enfuvirtide

c) Ritonavir

d) Didanosine

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

354. Rifampin induces metabolism of which drug?

a) Zidovudine

b) Lamivudine

c) Nevirapine

d) Enfuvirtide

Correct Answer - C
Ans. is 'c' i.e., Nevirapine
<u>Rifampin Interactions</u>

- Microsomal enzyme inducer - increases CYP 450 isoenzymes.
- It thus induces its own metabolism as well as metabolism of other drugs like warfarin, oral contraceptives, corticosteroids, sulfonylureas, HIV protease inhibitors, non nucleoside reverse transcriptase inhibitors (NNRTI), theophylline, metoprolol, fluconazole, ketoconazole, clarithromycin and phenytoin.
- Nevirapine is an NNRTI and thus its metabolism is induced by rifampin.

355. All true except ?

a) Cotrimoxazole is effective against P carinii

b) Clarithromycin effective against mycobacterium avium complex

c) Doxycycline is effective against legionella

d) Ceftriaxone is effective against gonorrhea

Correct Answer - C
Ans. is 'c' i.e., Doxycycline is effective against legionella

356. Penicillin is the metabolic product of ?

a) Aminoadipic acid

b) Aminocaproic acid

c) Levulinic acid

d) Arachidonic acid

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

- Penicillin is a product of secondary metabolic pathway of Penicillium chrysogenum.
- α-aminoadipic acid is the precursor of penicillin.
- This compound is normally converted to lysine via primary metabolic pathway.
- However, when the growth of fungus is inhibited, a-aminoadipic acid is converted to penicillin via secondary metabolic pathway.

357. Oral therapy of choice in MRSA skin infection is

a) Dicloxacillin

b) Clindamycin

c) Quinupristin

d) Dalfopristin

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

358. Gene responsible for INH resistance is ?

a) KAT G

b) rpo B

c) pnc A

d) emb B

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

359. Drug of choice for cystitis ?

a) Amoxicillin

b) Chloramphenicol

c) Cotrimoxazole

d) Ciprofloxacin

Correct Answer - D
Ans. is 'd' i.e., Ciprofloxacin
Fluroquinolones form the first line of drugs to be used against cystits.
Ciprofloxacin is a fluoroquinolone and so the most appropriate answer.

- Women with cystitis respond readily to any of several regimens. Most of the three-day regimens are usually 90-percent effective.

Following are the three day regimes followed for management of cystitis:
3-day course
Amoxicillin, 500 mg three times daily
Ampicillin, 250 mg four times daily
Cephalosporin, 250 mg four times daily
Ciprofloxacin, 250 mg twice daily
Levofloxacin, 250 or 500 mg daily
Nitrofurantoin, 50 to 100 mg four times daily or 100 mg twice daily
Trimethoprim-sulfamethoxazole, 160/800 mg two times daily

360. Gancyclovir is used intravitreallyfor treatment of?

a) Influenza

b) Rhinovirus

c) HZV

d) CMV retinitis

Correct Answer - D
Ans. is 'd' i.e., CMV retinitis
Some drugs which are used intravitreally are *:?*
1) Bevacizumab : inhibits VEGF action; used in metastatic colorectal cancer; off label use as intravitreous injection to slow progression of neovascular macular degeneration.
2) Foscarnet : CMV retinitis.
3) Gancyclovir : CMV retinitis.
4) Ranibizumab : slow macular degeneration.
5) Pegaptanib : neovascular age related macular degeneration.

361. Mechanism of action of paclitaxel is ?

a) Topoisomerase inhibition

b) Increase the polymerization of tubulin

c) Inhibition of protein synthesis

d) Alkylation of DNA

Correct Answer - B

Ans. is 'b' i.e., Increase the polymerization of tubulin

Taxanes

- *Paclitaxel* and *docetaxel* function as a mitotic spindle poison through high affinity binding to microtubules with *enhancement of tubulin polymerization.*
- The microtubules are stabilized and their depolymerization is prevented → inhibition of mitosis and cell division.
- Paclitaxel is metabolized in liver and undergoes enterohepatic circulation → dose should be reduced in liver dysfunction.
- Paclitaxel can cause hypersensivity reaction which does not occur with a novel albumin-bound paclitaxel preparation.
- Paclitaxel and docetaxel both can cause bone marrow depression & peripheral neuropathy.

362. Crystallization and storage of insulin requires ?

a) Mn^{++}

b) Zn^{++}

c) Cu^{++}

d) Ca^{++}

Correct Answer - B

Ans. is `b' i.e., Zn^{++}

- Zinc ions are essential for the formation of hexameric insulin and hormone crystallization.
- Following the synthesis of proinsulin, zinc promotes the formation of proinsulin hexamers and increases its solubility before conversion to insulin.
- Proinsulin binds 30 zinc ions, of which 2 to 4 are coordinated within the molecule. These zinc ions appear to be important for the solubility of proinsulin hexamers.
- With the removal of C-peptide from each proinsulin monomers, the resulting insulin increases its coordination of zinc to up to six ions per hexamer, which decreases its solubility and increases its crystallization within the secretory vesicle.
- The insulin, stored as crystalline hexamer, is resistant from proteolytic attack within the vesicle.
- Upon release of insulin into the bloodsteam, zinc is also released and the insulin becomes soluble in the blood.

363. Tamoxifen causes ?

a) Osteoporosis

b) Endometrial hyperplasia

c) Ovarian cancer

d) Decreased triglyceride level

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

364. Pegvisomant is used in ?

a) Dwarfism

b) Acromegaly

c) Cretinism

d) Protein energy malnutrition

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

365. Mechanism of action of sulfonylureas is ?

a) Insulin release

b) Alpha glucosidase inhibitor

c) PPAR y inhibitor

d) Insulin sensitizer

Correct Answer - A

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

Sulfonylureas act by

- *Sulfonylurease provoke a brisk release of insulin from pancreas.*
- They act on the so called *"Sulfonylurea receptors" (SUR1)* on pancreatic β-cell membrane - cause depolarization by reducing conductance of ATP sensitive K^+ channels. This enhances influx of Ca^{+2} → degranulation.
- *They do not cause hypoglycemia in pancreatectomized animals and type 1 diabetes (Presence of at least 30% of functional β-cells in essential for their action).*
- A minor action reducing glucagon secretion by increasing insulin and somatostatin release has been demonstrated.

Extrahepatic action

- On chronic administration they sensitize the target cells (especially the liver) to the action of insulin.
- On chronic administration their action on pancrease (to release insuline) declines due to down regulation of sulfonylurea receptors.
- But glycemic control is maintained due to extrahepatic action.

366. Following is true about alendronate except?

a) It is a second generation amino - BNP

b) It is used in prevention and treatment of osteoporosis

c) Oral bioavailability is 10%

d) Iron interferes with alendronate absorption

Correct Answer - C

Ans. is 'c' i.e., Oral bioavailability is 10%

Alendronate

- Potent orally effective second generation amino - BNP.
- It is used primarily in the prevention and treatment of osteoporosis as well as for paget's disease.
- It is to be taken empty stomach with one glass of water and patient should not lie supine for half an hour to prevent esophagitis.
- Calcium, iron, antacids, mineral water, tea, coffee, fruit juice interfere with alendronate absorption.
- Oral bioavailability of alendronate is 1%.
- Adverse effects are: esophagitis, gastric erosion, retrosternal pain, flatulence, headache and bodyache.
- Terminal elimination T1/2 of alendronate has been measured as 10.5 years.

367. 5HT2A antagonist drug is ?

a) Clozapine

b) Cisapride

c) Sumatriptan

d) Ketanserin

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

368. The iron preparation that can be given intravenously is ?

a) Ferrous sulphate

b) Iron dextran

c) Iron sorbitol citric acid complex

d) Colloidal ferric hydroxide

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

369. Cyproheptadine acts on all receptors except ?

a) D2

b) H1

c) Muscarinic

d) 5HT2A

Correct Answer - A

Ans. is 'a' i.e., D2

Cvproheptadine

- It primarily blocks 5HT2A receptors and has additional HI antihistaminic, anicholinergic and sedative properties.
- It is used in allergies and as antipuritic agent.
- It increases appetiteand has been used in children and poor eaters to promote weight gain.
- It is used in controlling intestinal manifestations of carcinoid and post gastrectomy dumping syndrome as well as in antagonizing priapism/ or orgasmic delaycaused by fluoxetine and trazodone.

370. Torcetrapib induces its hypolipidemic action by?

a) Inhibiting cholesterol ester triglyceride transport protein

b) Activating lipoprotein lipase

c) Inhibiting lipolysis

d) Inhibiting cholesterol absorption

Correct Answer - A
Ans. is 'a' i.e., Inhibiting cholesterol ester triglyceride transport protein

371. Treatment of lithium induced tremor is ?

a) Propranolol

b) Amiloride

c) Modafinil

d) Trihexphenydyl

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

- Toxic symptoms of lithium toxicity are frequent at serum level of lithium exceeds 1.5 meq/L and regularly seen at plasma concentration above 2 meq/L.
- The most common symptoms of acute lithium intoxication are neurological, i.e., tremer (being the most common). increased tendon reflexes, seizures, drowsiness, delirium, muscle twitching / weakness and coma.
- Gastrointestinal toxicity may also occur, e.g. Nausea, vomiting, diarrhea, abdominal pain, and metallic taste.
- Chronic intoxication can cause hypothyroidism and nephrotoxicity (diabetes insipidus, polyuria, polydipsia, nephrotic syndrome).
- **Amiloride is the DOC for lithium induced diabetes insipidus.**
- **Propranolol is used to treat lithium induced tremor in adults.**

372. Which of the following shows Kevorkian sign?

a) Retina

b) Sclera

c) Choroid

d) Vitreous

Correct Answer - A
Ans. is 'a' i.e., Retina
<u>Post mortem changes in retinal vessels</u>

- Fragmentation or segmentation (trucking or shunting) of the blood columns (Kevorkian sign) appears *in* the retinal blood vessels within minutes after death and persists for about an hour.
- This phenomenon occurs all over the body due to loss of blood pressure but it can be seen only in the retinal blood vessels with the ophthalmoscope.

373. Tokyo Convention Act of 1975 pertains to?

a) MTP

b) Clinical trial on humans

c) Women rights

d) Offences committed on board aircraft

Correct Answer - D
Ans. is 'd' i.e., Offences committed on board aircraft
Tokyo Convention Act 1975
Conventions on offences and certain acts committed while on board aircraft are carried out in India under the Tokyo Convention Act, 1975.

374. Hide and die syndrome is seen in ?

a) Hypothermia

b) Hyperthermia

c) Lightening injuries

d) Electrocution

Correct Answer - A

Ans. is *'a' i.e.,* Hypothermia

Paradoxical undressing and hide and die syndrome are the symptoms which are apparent in the terminal stages of hypothermia.

A) Paradoxical undressing

- This typically occurs during moderate to severe hypothermia, as the person becomes disoriented, confused, and combative.
- They may begin discarding their clothing, which, in turn, increases the rate of heat loss.

B) Terminal burrowing/ Hide and Die syndrome

- An apparent self-protective behaviour known as terminal burrowing, or hide-and-die syndrome, occurs in the final stages of hypothermia. The afflicted will enter small, enclosed spaces, such as underneath beds or behind wardrobes. It is often associated with paradoxical undressing.

375. Jamaican vomiting sickness cause by unripe apple fruit toxin?

a) Ricin

b) Muscarin

c) Amaidine

d) Hypoglycin A

Correct Answer - D
Ans. is 'd' i.e., Hypoglycin A
***Jamaican* Vomiting Sickness**

- Jamaican vomiting sickness is an acute illness caused by the toxin hypoglycin A, which is present in unripened fruit of the ackee tree.
- When ingested, hypoglycin A is metabolized to produce methylenecyclopropylacetic acid (MCPA). MCPA acts to inhibit the beta-oxidation of fatty acids.
- It is characterized by vomiting, coma, free fatty academia, dicarboxylicaciduria, depletion of liver glycogen, fatty degeneration of liver and death.

376. Plaque Jaunes seen in?

a) Testicular injury

b) Old healed cortical contusion

c) Spleenic contusion

d) Liver contusion

Correct Answer - B
Ans. is 'b' i.e., Old healed cortical contusion
Old or remote cerebral contusions are associated with resorption of the injured tissue, resulting in various degrees of cavitation, in addition to the presence of a golden-yellow discoloration due to residual hemosiderin.
These remote cerebral contusions are often referred to *as plaque jaune* or yellow plaque.

377. Stalking is_____type of offence?

a) Cognisible and Bailable

b) Non-cognisible and Bailable

c) Cognisible and Non-Bailable

d) Non-cognisible and Non Bailable

Correct Answer - A

Ans. is 'a' i.e., Cognisible and bailable

Stalking

- Unwanted or obsessive attention by a person or group towads other person.
- In 2013, Indian Parliament made amendments to the IPC, introducing stalking as a criminal offence.
- Stalking has been defined as a man following or contacting a woman, despite clear indication of disinterest by woman, or monitoring her use of Internet or electronic communication.
- First conviction - Bailable and Cognizable offence and has punishment in the form of imprisonment upto 3 years with fine.
- Second Conviction - Bailable and Non Cognizable offence and has punishment in the form of imprisonment upto 5 years with fine.

378. Punishment for voluntarily causing Grevious hurt comes under ?

a) S. 322 IPC

b) S. 323 IPC

c) S. 324 IPC

d) S. 325 IPC

Correct Answer - D
Ans. is 'd' i.e., S. 325 IPC

379. **After the unexpected death of a 17 year old boy on the ward the relatives claimed that it is due to the negligence of doctor. According to recent ruling of supreme court he is punishable under IPC 304 A only if there is:**

a) Inadvertent negligence

b) Negligence as per doctrine of res ipsa loquitor

c) Negligence in corporate hospital

d) Gross medical negligence

Correct Answer - D

A doctor is punishable under IPC 304 A if there is evidence of gross medical negligence / criminal negligence.

According to this act, whoever causes the death of any person by doing any rash or negligent act not amounting to culpable homicide shall be punished with imprisonment upto 2 years or with fine or both.

Criminal negligence occurs when the doctor shows gross lack of competence or gross inattention or inaction, gross recklessness, or wanton difference to the patients safety or gross negligence in the selection and application of remedies.

380.

All of the following section of IPC are correctly paired, except

a) Sec 300: Murder

b) Sec 304 : Culpable homicide not amounting to murder

c) Sec 307: Attempt to suicide

d) Sec 307: Attempt to murder

Correct Answer - C
C i.e. Attempt to suicid = S 307

381. Monozygotic twins do not have same?

a) Fingerprints

b) Genetic make up

c) Facial appearance

d) Stature

Correct Answer - A
Ans. is 'a' i.e., Fingerprints
Monozygotic twins are a result of the division of the single fertilized egg into two embryos. Thus, they have exactly identical DNA, except for the generally undetectable micromutations that begin as soon as the cell starts dividing.
Fingerprints of the identical twins start their development from the same DNA so they show considerable genetic similarity.
However identical twins are situated in different parts of the womb during development, so each fetus encounters slightly different intrauterine forces than their siblings.
As a result fingerprints of the identical twins have different microdetails which can be used for identification purposes.

382. Priviledged communication among the following are all except?

a) In court of law when asked by judge

b) Information on communicable diseases

c) In cases of suspected crime

d) Bus driver suffering from hepatitis A

Correct Answer - A

Ans. is d i.e., Bus driver suffering from hepatitis A

Professional secrecy and Privileged communication

Professional secrecy is an implied ethical and legal obligation (or contract), that the doctor will not divulge any thing he comes to know concerning patient during the course of his professional work. Doctor is liable to damages for its breech.

However, it is justified in certain circumstances, to *disclose information to proper authority,* and this is known as privileged communication. It is defined as a *communication made by doctor to a proper authority* that has corresponding legal, social, and moral duties to protect the public. Privileged communication is made in certain circumstances where the doctor is justified in disclosing information about his patient. Such communication is regarded as privileged and is an exception to the general rule of professional secrecy between doctor and patient. Example are:?

1) In court of law : When asked by judge.

2) As compulsor duty : Every doctor has to give details of birth, death and communicable disease.

3) As a social duty : If health of a patient can cause danger to society, e.g. :-

i. *Railway engine driver being colour blind.*

i. Bus driver being epileptic, drug addict or hypertensive.
i. Pilot having refractive errors.
v. Hotel waitor suffering from TB or being typhoid carrier.
v. Swimming pool user suffering from STD (e.g. syphilis) or infectious disease.
i. Person suffering from STD or HIV infection likely to marry.
i. Cases of food poisoining.
i. Water pollution.

*4)*In cases of *suspected crime.*

5) In *self interest,* both in civil and criminal suits by patient.

6) When a servant is sent by master.

7) In negligent suits when doctor is employed by opposite party to cross-examine patient who filed the suit.

8) In *insurance reports,* he can report any disease found. But he should not answer queries of insurance company or solicitor without the patient consent.

9) In the *interest of patient :* If patient is not taking proper care, details can be communicated to the relatives.

383. Which of the following is false regarding suspended animation?

a) Can be produced voluntarily

b) Patient can be resuscitated

c) It is state of apparent death

d) It usually lasts for 6 hours

Correct Answer - D

Ans. is 'd' i.e., It usually lasts for 6 hrs

Suspended animation (sudden death)

It is *apparent death,* i.e. signs of life are not found as the functions are interrupted for some time or are reduced to minimum. *The person is not dead i.e. there is no somatic death, brain death or molecular (cellular) death.* Life continues and resuscitation is successful in such cases. The condition lasts from few seconds to 1/2 an hour or more. It may be found in :

i. Electrocution
i. After anaesthesia
i. Cerebral concussion
v. Yogis (voluntary)
v. Drowning
i. Shock
i. Narcotic poisoning
i. Cholera
s. Sunstroke
s. Newborn infants

384. Condition suitable for adipocere formation ?

a) Cold and dry environment

b) Warm and dry environment

c) Warm and damp environment

d) Cold and damp environment

Correct Answer - C

Ans. is 'c' i.e., Warm and damp environment

Adipocere

- It is also called saponification
- It is a modification of putrefaction
- In this, the fatty tissues of the body change into substance known as adipocere.
  It is most commonly seen in the body immersed in water or in damp, warm environment.
- Moisture present, warmth present, air present → Putrefaction.
- Moisture present, warmth present, air absent, i.e. *warm humid climate* → Adipocere formation (saponification).
- Moisture absent, warmth present, air present, i.e. *hot dry climate* → Mummification.

385. Corpus deliciti stands for ?

a) Body of court proceedings

b) Body of offence

c) Body of proof

d) Body of evidence

Correct Answer - B

Ans. is 'b' i.e., Body of offence

The Corpus Delicti: (the body of offence: the essence of crime)

- It stands for the facts of any criminal offence.
- Eg : corpus delicti of murder is the fact that the person died from unlawful violence.
- It includes the body of the victim and the other facts which are conclusive of death by foul play, such as bullet or a broken knife blade found in the body and responsible for death.

386. Compulsory punishment in Indian law?

a) Exhibitionism

b) Voyeurism

c) Eonism

d) Onanism

Correct Answer - A
Ans. is 'a' i.e., Exhibitionism
Exhibitionism is punishable under Sec 294 IPC for imprisonment upto 3 months or fine or both.

387. Hymen tear in virgin is most commonly located at?

a) 4 - 8 O'clock

b) 5 - 11 O'clock

c) 9 - 12 O'clock

d) 1 - 6 O'clock

Correct Answer - A

Ans. is 'a' i.e., 4 - 8 O'clock

Hymen

- Hymen is a thin, firm fold of mucous membrane present at vaginal orifice. It usually has one opening, which hardly admits the tip of the little finger in a virgin.
- Hymen is like a tight stretched membrane. The usual shape is annular or semilunar, that is, cresentric with the broader part lying posteriorly.
- It may be *imperforate, leaving no opening; cribriformhaving a number of small opening or septate having two opening.*
- Hymen usually ruptures at the time of first sexual intercourse and usually ruptures posterolaterally(4 or 8 0' clock or 5 or 7 0' clock position) or posteriorly (6 O'clock position).

388. Masturbation by fingering in females usually results in rupture of hymen at which position?

a) 5 - 7 O'clock

b) 11 - 1 O'clock

c) 3 - 5 O'clock

d) 8 - 10 O'clock

Correct Answer - B
Ans. is 'b' i.e., 11 - 1 O'clock

389. What is another name for buccal coitus?

a) Buggery

b) Sin of Gomorrah

c) Cunnilingus

d) Fetishism

Correct Answer - B
Ans. is 'b' i.e., Sin of Gomorrah
<u>Buccal coitus (coitus per os/sin of gomorrah)</u>

- In this, the male organ is introduced into mouth, usually of a young child.
- Fellatio is oral stimulation of penis by male or female.
- Cunnilingus is oral stimulation of female genitals.

390. Heterosexual penile anal intercourse is called?

a) Buggery

b) Sin of Gomorrah

c) Sodomy

d) Both a and c

Correct Answer - D
Ans. is 'd' i.e., Both a & c
Sodomy

- Anal intercourse between two males or between a male and female is referred to as sodomy.
- It is also called buggery.
- It is called gerotophilia when the passive agent is adult.
- It is called paederasty when the passive agent is child.
- Catamite is the name given to the child who is the passive agent
- Pedophile is an adult who repeatedly engages n sexual activities with children.

391. In anal sex what is the child passive agent called?

a) Catamite

b) Paedolite

c) Paedophile

d) Paederasty

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

392. Hep Burn Osteometric board is used to measure?

a) Length of long bones

b) Length of flat bones

c) Breadth of long bones

d) Breadth of flat bones

Correct Answer - A
Ans. 'a' i.e., Length of long bones
Hep Burn Osteometric board is used to accurately measure length of long bones.

393. Length of stab gives information about?

a) Length of blade

b) Width of blade

c) Angle of insertion

d) Thickness of the blade

Correct Answer - B
Ans. is 'b' i.e., Width of blade
Length of the stab wounds is slightly less than the width of the weapon upto which it has been driven inside.
Deliberate lateral, forward or backward movement of the weapon during its withdrawal from the body tends to widen the wound, and the length will be more than the actual width of the blade.

394. Chop wound is also known as ?

a) Slash wounds

b) Incised looking lacerated wounds

c) Stab wounds

d) Slit wounds

Correct Answer - A
Ans. is 'a' i.e. Slash wounds
Chop Wounds/ Slash Wounds
They are deep gaping wounds caused by a blow with the sharp cutting edge of a fairly heavy weapon like hatchet, axe, sword, road heavy knife, chopper, saber, meat cleaver.
Dimetions of the wound correspond to the cross section of the penetrating blade.

395. Brain death indicated by suppression of reflexes all except?

a) Oculovestibular

b) Corneal

c) Pharyngeal

d) Patellar tendon

Correct Answer - D
Ans. is 'd' i.e., Patellar tendon
Clinical criteria for diagnosis of brain death *is :*

- *Coma (widesperead cortical destruction) :* There is unresponsiveness to all form of stimuli. Stimuli do not produce any motor responceexcept spinally mediated reflexes, i.e. *spinal reflexes may be intact e.g. deep tendon reflex.*
- *Absent of brainstem reflexes :* Pupillary reflex, *oculovestibular reflex, corneal reflex, pharyngeal and tracheal reflexes.*
- *Signs of brain stem (lower) destruction :* Apnea, pulse rate *invariant* and unresponsive to atropine.

396. Synonymous of pugilistic attitude is ?

a) Defence attitude

b) Assault attitude

c) Bow string attitude

d) Bayonet attitude

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

397. Punch drunk syndrome is seen in?

a) Boxers

b) Drug abuse

c) Alcoholic

d) Head injury

Correct Answer - A
Ans. is 'a' i.e., Boxers
Boxing Injuries

- Subdural hemorrhage in the middle cranial fossa due to tearing of the dural emissary veins is the most common cause of death due to prolonged repetitive punching.
- Pontine hemorrhage - Boxers hemorrhage
- Retinal detachment, choroidal tears and vitreous hemorrhages may occur.
- Punch drunk (Traumatic Encephalopathy/ DemetiaPugilistica) final form of neurological syndrome seen in boxers and consists of slurred speech, defective memory, slow thought process, stiff limbs, ataxia, broad based gait, outbursts of violence, parkinsonian like facial appearance and dementia.

398. Brauslaw second life test used in which organ?

a) Lung

b) Liver

c) Stomach

d) Heart

Correct Answer - C

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

Breslau's Second life test/ Stomach-bowel test

- This test is used to identify if dead foetus is still born or live born.
- Air is swallowed into the stomach during respiration.
- Thus if the stomach and intestines of the dead fetus float in water then they belong to live born fetus in whom respiration has taken place.

399. Curren's rule deals with?

a) Crime by person with mental disease

b) Crime by juvenile

c) Criminal abortion

d) Sexual assault

Correct Answer - A
Ans. is 'a' i.e., Crime by a person with mental disease
Criminal responsibility of insane is judged by following rules :
1.Mc Naughten rule (legal test or right or wrong test) :

- It states that an accused person is not legally responsible, if it is clearly proved that at the time of commiting the crime, person was suffering from such a defect of reason from abnormality of mind that he didn't know the nature and quality of act he was doing or that what he was doing was wrong i.e. *a person is not responsible if he is not of sound mind.*
- It is accepted in india as law of criminal responsibility and is embodied in section 84 IPC as - "nothing is an offence which is done by a person, who at the time of doing it, by reason of unsoundness of mind is incapable of knowing the nature of act, or that he is doing what is either wrong or contrary to law".

2.Doctrine of partial responsibility - If a person is suffering from some weakness or aberration of mind (though not completely insane), he is only partially responsible for his actions, e.g. obsession states or depressions.
3. Durhan rule- Accused is not responsible for the act, if his act resulted from mental disease or defect.
4. Currens rule- A person is not responsible if at the time of committing the crime, he did not have the capacity to regulate his conduct according to the requirements of law, as a result of his

conduct according to the requirements of law, as a result of his mental disease or defect.
5.American law institute test-Insane lacks the capacity to appreciate the wrongfulness of his conduct or to confirm to the requirements of law, therefore he is not responsible for crimes committed.
6.Norwegion system-No defendant considered insane or unconscious at the time of offence, may be punished.

400. A person is liable for punishment for perjury which is defined under?

a) Section 190 of IPC

b) Section 191 of IPC

c) Section 192 of IPC

d) Section 193 of IPC

Correct Answer - D
Ans. d. Section 193 of IP
A person is liable for punishment for perjury, which is defined under section 193 of IPC. Section 191 IPC defines perjury and section 193 IPC describes the punishment.
"Perjury means giving willful false evidence. The witness is liable to be prosecuted for perjury and the imprisonment may extend up to 7 years (Section 193, IPC)."- Reddy 29/e pe pll

Hostile Witness

- Hostile witness is one who is supposed to have some interest or motive for concealing part of the truth, or for giving completely false evidence. (Section 191, IPC)°

Perjury

- Perjury means giving willful false evidence.
- Whoever, being legally bound by an oath, or by an express provision of the law to state the truth, makes any statement, which is false, which he 344, CrPC). *Q*
- The witness is liable to be prosecuted for perjury and the imprisonment may extend up to 7 years (Section 193, IPC).a

401. Antidote true is all except?

a) Deferoxamine - Iron

b) Flumazenil - BZDs

c) Dimercaprol - Arsenic

d) Naloxone - Dhatura

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

402. Ferric chloride test is positive in ?

a) Penicillin overdose

b) Salicylate overdose

c) Dhatura poisoning

d) Cannabis poisoning

Correct Answer - B

Ans. is `b' i.e., Salicylate overdose

Ferric Chloride test

- Is used to diagnose cases of Carbolic acid/ phenol and salicylate overdose.
- Adding few drops of 10% ferric chloride solution to 1 ml of sample produces a blue color indicating a positive test

403. What is not true about valid consent?

a) Obtained in presence of two witnesses

b) Use technical jargon

c) Should not be obtained with force, fear or fraud

d) True information to be given freely

Correct Answer - B
Ans. is 'b' i.e., Use technical jargon
Legally valid consent for medical examination and treatment is one :?

- Given by person himself, if above 12 years, conscious and mentally sound (sane).
- Or given by parent, guardian, or friend, if patient is less than 12 years or is unconscious or is insane.
- Is written informed consent, *i.e.* is given in writing after knowing the nature of condition of procedure, *its* alternatives and its complications. All disclosures/ true information should be given freely in a language that the patient best understand. Non-medical persons usually do not understand the medical technical jargon, so the consent should be taken in simple language, which the patient can understand and not a technical jargon. o Given in presence of two witnesses.
- Given before the actual doing of procedure.
- *Given freely, voluntarily and directly; without fear, force or fraud.*
- Signed by doctor, patient (or guardian) and witnesses.

404.

Part II of death certificate contains?

a) Manner of death

b) Immediate cause of death

c) Antecedant cause of death

d) Associated comorbid condition of death

Correct Answer - D
Ans. is 'd' i.e., Associated comorbid condition of death

405. Radiomimetric BACTEC detect growth of M tuberculosis in how much time ?

a) 1 week

b) 2-3 week

c) 4-8 week

d) > 10 weeks

Correct Answer - B
Ans. is `b' i.e., 2-3 weeks

406. Germ theory of disease was proposed by ?

a) Louis Pasteur

b) James Linds

c) Aristotle

d) Pattenkoffer

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

- *Germ theory of disease → Louis pasteur*
- Spontaneous generation theory → Aristotle
- *Multifactorial causation of disease → Pattenkoffer.*
- *Intake of fresh (citrus) fruits in prevention of scurvy → James Lind*
- Term *'Vaccination'* Edward Jenner
- Term *'Vaccine' Louis Pasteur*
- Life cycle of plasmodium → Ronald Ross
- Transmission of yellow fever Walter Reed
- First vaccine developed → Small pox (Edward Jenner)
- First antibiotic → Penicillin (Alexander Fleming)
- Growth chart David Moley

407. Gentian violet colouration of gram positive bacteria is due to ?

a) Peptidoglycan

b) Capsule

c) Cell membrane

d) None of the above

Correct Answer - A

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

GRAM STAINING

The gram stain differentiates bacteria into two broad groups *:?*

1. *Gram positive* → Resist decolourization and retain primary stain, appear violet.
2. *Gram negative* → Decolourised by organic solvents, and therefore, take the counterstain, appearing red.

408. Maximum cell size in bacterial cell growth cycle?

a) Lag phase

b) Log phase

c) End of plateau phase

d) Early stage of decline

Correct Answer - A
Ans. is 'a' i.e., Lag phase
The various phases of growth curve are associated with morphological and physiological alterations of the cells.

409. True about exotoxin ?

a) Non-antigenic

b) Enzymatic

c) Non-protein

d) Heat stable

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

410. Lipopolysaccharide of gram negative bacteria ?

a) Hapten

b) Heterophile antibody

c) Stimulator for B lymphocytes

d) Induce cell mediated immunity

Correct Answer - C
Ans. is 'c' i.e., Stimulator for B lymphocytes
The biological activity of endotoxin is associated with lipopolysaccharide (LPS).
i) Toxicity is associated with lipid component (Lipid A).
ii) Immunogenicity is associated with polysaccharide component.
The cell wall antigen (0 antigen) of Gram-negative bacteria are components of LPS.
LPS elicits a variety of inflammatory responses and activates alternate complement pathway.
The susceptibility to infections induced by Gram-negative bacteria is largely determined by innate immune response to bacterial cell wall lipopolysaccharide (LPS).
The stimulation of B-cells by LPS enhances their antigen-presenting capacity and is accompanied by B-cell proliferation and secretion of large qunatities of LPS neurilizing antibodies.

411. Glassware is sterilized in Hot air oven at -

a) 160°C for 1 hour

b) 170°C for 1 hour

c) 180°C for 1 hour

d) 190°C for 1 hour

Correct Answer - A
Ans. is 'a' i.e., 160°C for 1 hour

412. Ideal urine specimen for anerobic culture should be ?

a) Mid stream urine sample

b) First few drops at morning

c) Sample by foley's catheter

d) Sample by suprapubic aspiration

Correct Answer - D
Ans. is 'd' i.e., Sample by suprapubic aspiration
Suprapubic aspiration is the preferred method of urine collection when anaerobic bacteria are suspected as cause of UTI.

413. Koch's postulate is not fulfilled by ?

a) M. tuberculosis

b) Gonococci

c) Staph aureus

d) Bacillus Anthracis

Correct Answer - B

Ans. is 'b' i.e., Gonococci

Koch postulates

Robert Koch proposed a series of postulates that have been applied broadly to link many specific bacterial species with particular disease.

Koch's postulates are :

.. The microorganism should be found in all cases of the disease in question and its distribution in the body should be in accordance with the lesions observed.

2. The microorganism should be grown in pure culture in vitro (or outside the body of the host) for several generations.

3. When such a pure culture is inoculated into susceptible animal species, the typical disease must result.

4. The microorganism must again be isolated from the lesions of such experimentally produced disease. o Microorganisms that do not meet the criteria of Koch's postulates.

5. *Mycobacterium leprae* (leprosy)

6. Treponema pallidum (syphilis)

7. *Neisseria gonorrhoeae*

8. No animal model for experimental infection

- Microorganism that partially satisfy the postulates. q E. coli induced diarrhea.

414. Continuous cell culture of bacteria

a) U tube

b) Craige tube

c) Chemostat device

d) Agar dilution method

Correct Answer - C
Ans. is 'c' i.e., Chemostat device
Bacterial cultures can be maintained in a state of exponentional growth over long periods of time using a system of continuous culture.
Continuous culture, in a device called chemostat, can be used to maintain a bacterial population at a constant density, a situation that is, in many ways, more similar to bacterial growth in natural environments.
In a chemostat microbial cells are grown at a steady state where cell biomass production, substrates and products concentrations remains constant, and growth occurs at a constant rate.
These features make a chemostat unique and powerful tool for biological and physiological research.

415. Best virucidal disinfectant is?

a) Phenol

b) Hypochlorte

c) BPL

d) Formaldehyde

Correct Answer - D
Ans. is 'd' i.e., Formaldehyde
Among the options, formaldehyde is high level disinfectant.
Categories of effective potency
Sterilants :- are capable of completely eliminating or destroying in all forms of microbial life, including spores.
Disinfectants :- Destroy some, but not necessarily all organisms. The category is further divided into subcategories:-
i) High level disinfectants :- In their usual concentration and contact period, they destroy all microorganisms, with exception of high number of bacterial spores (small number of spores can be destroyed). It is worth noting that at higher concentrations and prolonged contact period, high level disinfectant can act as steriliant, i.e. can kill high numbers of spores as well. Examples are *:-2% gluteraldehyde, 8% formaldehyde, 6-10% hydrogen peroxide and ethylene oxide gas.*
ii) Intermediate level disinfectants :- Inactivate even resistant organisms such as mycobacterium tuberculosis as well as vegetative bacteria, most viruses and most fungi, but do not necessarily kill bacterial spores. Examples are *:-0.5% iodine, 70-90% ethanol and isopropanol, chlorine compounds (hypochlorite), some phenolic compounds and iodophor based disinfectants.*
iii) Low level disinfectants :- kill most bacteria, some viruses and

some fungi, but cannot be relied on to kill resistant microorganisms such as tubercular bacilli or bacterial spores. Examples are :- *quarterly ammonium compounds, mercurials,some phenolic compounds and iodophores.* Note:- the disinfectant levels of iodophors (iodines) and phenolic compounds may be classified as intermediate or low depending on the concentration employed.

416. Gamma irradiation used for all of the following except?

a) Syringes

b) Catgut suture

c) Grafts

d) Endoscope

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

417. Seitz filter is a ?

a) Candle filter

b) Asbestos filter

c) Membrane filter

d) Sintered glass filters

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

418. Not an enrichment medium ?

a) Selenite F broth

b) Tetrathionate broth

c) Alkaline peptone water

d) Loeffler's serum

Correct Answer - D
Ans. is `d' i.e., Loeffler's serum

419. Differential media is ?

a) Nutrient agar

b) Chocolate agar

c) MacConkey's agar

d) Tetrathionate broth

Correct Answer - C
Ans. is 'c' i.e., MacConkey's agar
Differential media

- A medium has substances which bring out different characteristics of bacteria and thus helping to distinguish between them.
- Example - MacConkey's medium.

Remember

- MacConkey's medium acts both as indicator and differential media.

420. DCA media used in differentiation of which infection?

a) Salmonella

b) Staph aureus

c) H. influenzae

d) Bordetella

Correct Answer - A
Ans. is 'a' i.e., Salmonella
Deoxycholate citrate agar (DCA) medium is a selective medium for Salmonella and Shigella.
It is also used as a differential medium to differentiate lactose fermenter from non-lactose fermenting enteric pathogens.
Salmonella and Shigella (except Shigella Sonnei) are non-lactose fermenters.

421. Role of Malachite green in LJ medium ?

a) Increase growth of M. tuberculosis

b) Inhibits growth of other bacteria

c) Nutritive value

d) As an indicator

Correct Answer - B

Ans. is 'b' i.e., Inhibits growth of other bacteria

Lowenstein-Jensen Medium (LJ medium)

LJ medium consists of mineral salts, asparagine, glycerol, malachite green and hen's egg.

The malachite green prevents the growth of other microorganism on medium.

It is used as a primary isolation medium for mycobacteria.

422. Selective media for Pseudomonas ?

a) EMJH medium

b) PALCAM agar

c) PLET medium

d) Cetrimide agar

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

423. Selective medium for Vibrio cholerae ?

a) GTTA medium

b) Stuart medium

c) Skirrow's medium

d) MYPA medium

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

424. Culture medium for campylobactor jejuni ?

a) BYCE medium

b) Skirrow's medium

c) Thayer-Martin medium

d) TCBS medium

Correct Answer - B
Ans. is 'b' i.e., Skirrow's medium

425. Thayer Martin medium is used for ?

a) Legionella

b) Meningococcus

c) Pneumococcus

d) Mycoplasma

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

426. Mannitol Salt agar is used for isolation of ?

a) Gonococcus

b) Pneumococcus

c) Staphylococcus

d) Pseudomonas

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

427. Not true about streptococcus pyogenes ?

a) Gram positive

b) Bacitracin sensitive

c) Catalase positive

d) Not soluble in bile

Correct Answer - C
Ans. is 'c' i.e., Catalase positive
Streptococcus pyogenes (group A streptococci) are gram-positive cocci arranged in chains. *Chain formation is due to cocci dividing in one plane only and daughter cells failing to separate completely.*
Chain formation is more pronounced in broth media.

- Fresh isolates form capsule which is made up of hyaluronic acid. It protects the organism from phagocytosis

Cultural characteristics

- Virulent strains produce 'matt' (finely granular) colony
- Avirulent strains produce 'glossy' colonies.
- Capsulated strains produce mucoid colonies, corresponding in virulence to the matt type.

Biochemical reactions

- Senstivity to bacitracin is employed as a convenient method for differentiating str. pyogenes from other hemolytic streptococci (Maxted's observation).
- Catalase negative
- Not soluble in 10% bile.
- Hydrolyse PYR
- Ferment trehalose but not ribose.

428. Which of the following is non-lactose fermenting bacteria ?

a) E. coli

b) Klebsiellla

c) Citrobacter

d) Salmonella

Correct Answer - D
Ans. is 'd' i.e., Salmonella
Lactose fermentation by Enterobacteriacae members
Initially Enterobacteriacea was classifed on the bases of their lactose fermenting ability on *MacConkey's medium, the most popular medium for the isolation of fecal bacilli.*
Lactose fermenters produce pink/bright red colonies on MacConkey's agar , while lactose non-fermenters produce pale colonies :
i) Lactose fermenters (rapid) : These are Coliforms, e.g. Escherichia, Klebsiella and Enterobacter aerogenes.
ii) Late lactose fermenters (slow) : These are Shigella Sonnei, Serratia, Citrobacter, Arizona, Providencia and Ervinia.
iii) Non-lactose fermenters : Shigella except Shigella Sonnei, Salmonella, Proteus.

429. True about corynebacterium diphtheriae ?

a) Schick test is done for resistance

b) Gram positive organism

c) Schick test is an intramuscular test

d) Most important treatment is antibiotic

Correct Answer - B
Ans. is 'b' i.e., Gram positive organism
Corynebacterium diphtheriae is a gram positive bacillus.
Schick test was an intradermal test which was used for susceptibility.
Administration of diphtherial antitoxin is the most important element in the treatment of respiratory diphtheria.
The primary goal of antibiotic therapy is to eradicate C. diphtheriae.
Drugs currently used are erythromycin or procaine penicillin G.
alternatives are rifampicin or clindamycin.

430. An organism grown on agar shows green coloured colonies, likely organism is ?

a) Staphylococcus

b) Streptococcus

c) Pseudomonas

d) E. coli

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

431. Shigella are be divided into subgroup on the basis of ability to ferment -

a) Lactose

b) Maltose

c) Fructose

d) Mannitol

Correct Answer - D
Ans. is 'd' i.e., Mannitol
Fermentation of mannitol is of importance in classification Shigella

Mannitol fermenting	Mannitol nonfermenting
. *Sh. flexneri (sub group B)*	*Sh. dysenteriae (sub group A)*
. *Sh boydii (sub group C)*	
. *Sh. Sonnei (sub group D)*	

432. Live TB bacilli culture is by -

a) Tinsdale medium

b) MGIT

c) MYPA medium

d) BYCE agar

Correct Answer - B
Ans. is 'b' i.e., MGIT
Culture of Tubercular bacilli (M. tuberculosis)
Isolation of micobacteria from clinical samples by culture is the most reliable method for diagnosis.
M. tuberculosis can be cultivated by ?
A) On conventional media
Mycobacterial culture on conventional media is the gold standard for primary isolation.
Various liquid and solid media are used.
The solid medium most widely employed for routine culture of tubercular is Lowenstein - Jensen Medium (L.J. medium).

433. Rickettsial infections cause 30% mortality due to ?

a) Endothelial injury

b) Hemodynamic instability

c) Endocarditis

d) Renal failure

Correct Answer - A
Ans. is 'a' i.e., Endothelial injury
Rickettsial infections are associated with a high morbidity and mortality.
The mortality rate can be as high as 20% of Rocky Mountain Spotted fever and 30% for epidemic typhus.
On entry into the human body, the rickettsiae multiply locally and enter the blood. They become localized chiefly in vascular endothelial cells, which enlarge, degenerate and cause thrombus formation, with partial or complete occlusion of the vascular lumen.
The overall pathological features of the rickettsial diseases are due to the damage of vascular endothelium.

434. Most common cause of cellulitis ?

a) Streptococcus

b) Staphylococcus

c) Pseudomonas

d) E. coli

Correct Answer - A
Ans. is 'a' i.e., Streptococcus
Streptococcus pyogenes (group A p - hemolytic streptococcus) is the most common cause of:-

- Acute tonsillitis in children ii) Cellulitis iii) Peritonsillar abscess (quinsy)
- Sore throat (pharyngitis

435. True about Shiga toxin ?

a) An endotoxin

b) Inhibit protein synthesis

c) Activate adenylyl cyclase

d) Increase cGMP

Correct Answer - B

Ans. is 'b' i.e., Inhibit protein synthesis

Shiga toxin (verocytotoxin)

- It is an exotoxin.
- It is produced by shigella dysentriae type 1.
- Genes encoding shiga toxin are located on chromosome, while the VT1 of EHEC is phage-encoded.
- Toxin constits of two subunits - b Subunits, helps is binding and A subunit which has the active portion of toxin.
- Subunit 'A' is divided into A, and A_2 fragment. A l fragments inhibits protein synthesis by inactivating 60s ribosome.

436. Phage encoded exotoxin fo vibrio cholerae resembles which toxin of E. coli ?

a) Heat labile toxin

b) Heat stable toxin

c) Shiga like toxin

d) Verocytotoxin

Correct Answer - A
Ans. is 'a' i.e., Heat labile toxin
Heat labile toxin of E. coli and cholera toxin resemble each other in their structure, antigenic properties and mode of action. Both act by activating adenyl cyclase in the enterocyte to form cyclic adenosine 5' monophosphate (c AMP).
Heat stable toxin of E. coli acts by activation of cyclic guanosine monophosphate (c GMP) in the intestine.

437. Not ture about El Tor biotype of vibrio cholerae?

a) Lower mortality

b) Less SAR

c) Less chances of survival in environment

d) VP (+)

Correct Answer - C
Ans. is 'c' i.e., Less chances of survival in environment

438. Ricketsial disease with positive Weil-Felix reaction by only OX-19 ?

a) Epidemic typhus

b) Scrub thphus

c) Trench fever

d) Q-fever

Correct Answer - A

Ans. is 'a' i.e., Epidemic typhus

Weil felix reaction

- This reaction is an *agglutination test* in which sera are tested for agglutinins to 0 antigens of certain nonmotile *proteus strains OX - 19, OX - 2 and OX - K.*
- The basis of the test is the sharing of an alkali - stable carbohydrate antigen by some rickettsiae and by certain strains of proteus, P. vulgaris OX - 19 and OX - 2 and P. mirabilis OX - K.
- The test is usually done as a tube agglutination, though rapid slide agglutination methods have been employed for screening.

439. Cowdry type A inclusion bodies are seen in ?

a) HBV

b) Herpesvirus

c) Adenovirus

d) Poxvirus

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

440. True about hepatitis C virus are all except

a) Most common cause of chronic infection

b) Has live attenuated vaccine

c) Spread by blood transfusion

d) Is a flavivirus

Correct Answer - B

Ans. is 'b' i.e., Has live attenuated vaccine

HEPATITIS C VIRUS (HCV)

- The hepatitis 'C' virus has been classified as a new genus Hepacivirus in the family flaviviridae.
- *The virus can not be cultured* but can be cloned in Escherichia coli.
- *It is the commonest cause of post transfusion hepatitis and chronic hepatitis.*
- Incubation period is 50 days (15 - 160 days).
- Modes of transmission of HCV are *:?*

i. *Blood transfusion :* Most common mode of transmission and *HCV is the most common cause of post-transfusion hepatitis.*

i. *Percutaneous transmission :* By needle punctures.

i. *Perinatal transmission : Transmission appears to be a function of the degree of maternal viremia which is detected by PCR for HCV RNA.*

. Sexual transmission.

- *Among hepatitis viruses, HCV has the maximum propensity for chronic hepatitis and chronic carrier state.* It can also cause cirrhosis and hepatocellular *carcinoma.*
- *The most common indication for liver transplantation currently is cirrhosis due to chronic hepatitis'C' infection.*
- *HCV usually does not cause acute liver failure (vary rare with HCV)*

- Extrahepatic manifestation with HCV infection may be *essential mixed cryoglobulinemia (more than HBV), porphyria cutanea tarda, pulmonary fibrosis and ntembrano-proliferative GN.*
- Among the Hepatitis viruses, vaccine is available for HAV and HBV..
- Live attenuated vaccine is available for HAV only (among hepatitis viruses).

441. HCV virus is ?

a) Enveloped DNA

b) Enveloped RNA

c) Nonenveloped DNA

d) Nonenveloped RNA

Correct Answer - B
Ans. is 'b' i.e., Hepatitis C virus is a small, enveloped, positive-sense single-stranded RNA virus of the family Flaviviridae.

442. Best test to diagnose prodrome of Hepatitis A ?

a) HAV in blood

b) IgG anti-HAV

c) IgM anti-HAV

d) HAV in stool

Correct Answer - C
Ans. is 'c' i.e., IgM anti-HAV
Lab diagnosis of HAV

- "Detection of IgM - specific anti-HAV in the blood of an acutely infected patient confirms the diagnosis of hepatitis A".
- IgM appears in acute phase, peaking about 2 weeks after elevation of liver enzymes and becomes undetectable within 3-6 months.
- *ELISA* is the method of choice for measuring antibodies.
- Diagnosis can also be established by detection of virus in the stool from about 2 weeks prior to the onset of jaundice up to 2 weeks after. "But these tests for detection of HAV, are not widely available or useful in practice".

443. Hepatitis E usually affects ?

a) Children

b) Adults

c) Old age

d) Toddlers

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

444. Single stranded RNA with segmented genes is found in ?

a) Influenza

b) Rotavirus

c) Reovirus

d) Measles virus

Correct Answer - A
Ans. is 'a' i.e., Influenza
Some viruses have segmented nucleic acid (genome).
These are (Mnemonic BORA) *:?*
1) Bunyaviridae : 3 segments of single stranded RNA.
2) Orthomyxoviridae (influenza) : 8 segments of single stranded RNA.
3) Reoviridae (rotavirus, reovirus) : 10-12 segments of double stranded RNA.
4) Arenaviridae : 2 segments of single stranded RNA.

445. Most common cause of sporadic encephalitis ?

a) EBV

b) HSV

c) Poliovirus

d) CMV

Correct Answer - B
Ans. is `b' i.e., HSV
"HSV encephalitis is the most common sporadic acute viral encephalitis in most part of the world." — Ananthnarayan

446. Least common cause of sporadic encephalitis ?

a) HSV

b) VZV

c) Arbovirus

d) Rhinovirus

Correct Answer - D
Ans. is `d' i.e., Rhinovirus
Causes of viral encephalitis are :-
1. HSV
2. Rabies virus
3. VZV
4. Arboviruses (west rile, eastern equine)
5. CMV

447. Not a DNA oncovirus ?

a) HTLV

b) HBV

c) HCV

d) HPV

Correct Answer - A
Ans. is 'a' i.e., HTLV
Human T-cell leukemia virus (HTLV) is a RNA oncogenic virus.

448. Rubella virus belongs to which family ?

a) Rheovirus

b) Togavirus

c) Picornavirus

d) Orthomyxo

Correct Answer - B
And. B. Togavirus

- Rubella virus (RuV) is the pathogenic agent of the disease rubella, and is the cause of congenital rubella syndrome when infection occurs during the first weeks of pregnancy.
- Rubella virus is the only member of the genus Rubivirus and belongs to the family of Togaviridae, whose members commonly have a genome of single-stranded RNA of positive polarity which is enclosed by an icosahedral capsid.

449. Acute hemorrhagic conjunctivitis is caused by ?

a) Enterovirus 70

b) Adenovirus

c) Poliovirus

d) Hepadnavirus

Correct Answer - A
Ans. is 'a' i.e., Enterovirus 70
Acute hemorrhagic **conjunctivitis** (AHC) may be caused by adenoviruses, but two **enteroviruses**, **enterovirus 70** and coxsackie A24 variant, are the major causes.

450. Bivalent HPV vaccine contains which types ?

a) Type 6,11

b) Type 6,16

c) Type 16,18

d) Type 11,18

Correct Answer - C

Ans. is 'c' i.e., Type 16,18

Human papillomavirus (HPV) vaccine

- HPV is one of the most important risk factor for cervical cancer, widespread vaccination has the potential to reduce cervical cancer deaths around the world by as much as two thirds, if all women were to take the vaccine and if protection turns out to be long term.
- In addition, the vaccine can reduce the need for medical care, biopsies and invasive procedures associated with the follow up from abnormal pap tests. Thus, helping to reduce the health care costs and anxieties related to abnormal pap tests and follow up procedures.
- HPV vaccines are ?
  1) Preventive vaccines
- The role of HPV vaccine is to prevent infection with certain species of Human papillomavirus associated with the development of cervical cancer, genital warts and some less common type of cancers.
- These vaccines are based on *virus like particles (VLPs)* assembled from recombinant *HPV coat proteins (major capsid protein L1).*
- Currently, one *quadrivalent product* containing HPV *types 6,11,16 and 18* has been licenced in US and recommended by the centres

for disease control and prevention for administration to girls and young women 9-26 years of age — *type 16 and 18 are most important as they cause 70% of cervical cancer world wide.*

- Another product contains *HPV types 16 and 18 (bivalent)* and is likely to be available in the near future.

2) Therapeutic vaccines (under trial)

- In addition to above two preventive vaccines, laboratory research and several human clinical trials are focused on the development of therapetic HPV vaccines. In general these vaccines focus on the *main HPV oncogenes, E6 and E7.* Since expression of E6 and E7 is required for promoting the growth of cervical cancer cells and cells within warts, it is hoped that immune responses against two oncogenes might eradicate established tumors.

451. True about CMV are all except ?

a) Most common cause of post-transpinatation infection

b) Most common cause of transplacental infection

c) A non-enveloped DNA virus

d) Produces intranuclear inclusions

Correct Answer - C
Ans. is 'c' i.e., A non-enveloped DNA virus
CMV is an enveloped DNA virus, belongs to Herpesviridae.

452. Most common opportunistic infection in HIV, globally ?

a) P. jiroveci

b) Candida

c) M. tuberculosis

d) Cryptococcus

Correct Answer - A
Ans. is 'a' i.e., P. jiroveci
R jiroveci (Carinii) is the most common opportunistic infection in AIDS patients, overall.
"P jiroveci pneumonia remains the most common AIDS related opportunistic infection"
– *Textbook of diagnostic microbiology* o In developing countries (like India), most common opportunistic infection in AIDS is M. tuberculosis.

453. True about bacteriophage is:

a) Can transmit toxin to bacteria

b) Bacteria which transmits DNA to another bacteria

c) Causes transformation of bacteria

d) Is a virus which invades bacteria

Correct Answer - D

Ans. (d) Is a virus which invades bacteria

Bacteriophage are the virus that infect bacteria. They play on important role in transmission of genetic information between bacteria by the process of transduction.

The presence of phage genome integrated with bacterial chromosome confers certain properties to the bacteria, this process is called phage conversion.

Note: Nucleic acid of phage is surrounded by a protein coat

- Some phage also contains lipid
- Most bacteriophage possess ds DNA as genetic material
- In diphtheria bacillus toxin production is determined by the presence of a bacteriophage prophage beta
- So option 'a' is also partially correct, as option 'd' is universal for bacteriophage it is taken as correct answer

454. Rabies is diagnosed by ?

a) Hair follicle smear

b) Corneal smear

c) Isolation from blood

d) Nerve biopsy

Correct Answer - B

Ans. is 'b' i.e., Corneal smear

Diagnosis of rabies

The diagnosis of rabies is usually made by the detection of rabies virus antigens by immunofluorescence.

The specimens collected are :

- Antemortem
- Corneal smear
- Skin biopsy from neck or saliva
- Postmortem
- Brain biopsy
- *A definitive pathologic diagnosis of rabies can be based on the finding of Negri bodies in the brain or spinal cord.*
- Other methods for Rabies diagnosis

  i) Rabies virus specific antibodies detection in serum and CSF.
- But rabies virus-specific antibodies develop relatively late in the clinical course when the patient survives beyond the acute phase.
- Two methods are used to detect antibodies:
- Indirect fluorescent antibody test.
- Rapid fluorescent focus inhibition (RFFIT)

  ii) Reverse-transcription polymerase chain detection of rabies virus nucleic acid in the saliva.
- It is done during early CNS infection.

455. Virus which has more than one serotypes ?

a) Measles

b) Mumps

c) Rubella

d) Influenza

Correct Answer - D
Ans. is 'd' i.e., Influenza
Influenza virus is an *enveloped RNA virus* containing 8 pieces (8 segments) of single stranded RNA.
There are three viral subtypes : (i) *Type A* (causes all pandemics and most epidemics); (ii) Type B; and (iii) Type C (not circulating currently).

456. Chlonorchis sinensis infection is due to ingestion of?

a) Fish

b) Pork

c) Snail

d) Beef

Correct Answer - A

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

Clonorchis sinesis

- Clonorchis sinensis is a trematode. It is also known as liver luke.
- Man is definitive host for clonorchis and snail is the secondary host.
- Clonorchis sinensis is caused by ingestion of metacercaria in inadequately cooked freshwater fish.
- The organisms excyst in the duodenum.
- The larva travel through the ampulla of vater and mature into adult worms in bile canaliculi.
- The adult worms release small operculated eggs which pass with bile into the intestines and are voided with stools.
- Most of the infections are *asymptomatic* because of the low worm burden.

Chronic infection or repeated infection is associated with manifestations such as :

- Cholangitis
- Cholangiohepatitis
- Biliary obstruction *(Biliary obstruction causes increase in alkaline phosphatase).*

Also know

- Clonorchis sinensis infection is associated with cholangiocarcinoma.

457. Clonorches sinenensis is?

a) Tapeworm

b) Roundworm

c) Threadworm

d) Fluke

Correct Answer - D

Ans. is `d' i.e., Fluke

Trematodes (fluke)

- These arc *flat, leaf* like helminths.
- They can be classified depending on their site of localization in human tissues.

A) Blood flukes

i. *Vesical venous plexus :* Schistosoma hematobium.

i. *Rectal venous plexus & portal venous system :* S mansoni (inferior mesentric vein), S japonicum (superior mesenteric vein).

B) Intestinal flukes

i. *Small intestine :* Fasciola buski, Heterophyes heterophes, Metagonimus yokogawi, Watsonius watsoni.

i. *Large intestine :* Gastrodiscoides hominis.

C) Tissue flukes

i. *Liver flukes :* Fasciola hepatica, *Clonorchis sinensis, Opisthorchis felineus,* 0 viverrini.

i. *Lung fluke :* Paragonimus westermani.

- Trematodes are monoecious (hermaphrodite), i.e. sexes are not separate. One exception being Schistosomes, which are diecious with separate sexes.
- Trematodes complete their life cycle in three hosts: One definitive (man) and two intermediate hosts (Freshwater snail or mollusc as

first intermediate host and fish or crab as second intermediate host).

- Trematodes are Oviparous and lay operculated eggs, except for schistosomes which lay non-operculated eggs.

458. Invasive amoebiasis can be best diagnosed by ?

a) ELISA

b) Countercurrent immunoelectrophoresis

c) Indirect hemaglutination test

d) Complement fixation test

Correct Answer - A

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

Diagnosis of amoebiasis

- Diagnosis is made by :?

1) Stool examination

- *For amoebic colitis definitive diagnosis is made by the demonstration of hematophagous trophozoites.*
- Fecal findings are :-

i. Positive test for heme.

i. *Paucity (lack) of neutrophils (pus cells).*

i. Presence of amebic cysts or trophozoites

*. *Charcot-leyden crystals.*

- Charcot-leyden crystals are also seen in whipworm (trichuris), Ascaris pneumonia, and bronchial asthma.

2) Serological tests

i. These test are *most useful for invasive amaebiasis (e.g. amaebic hepatitis/liver abscess).*

i. *Most commonly used test is indirect hemagglutination (IHA).* But *ELISA is best (sensitive and specific) test* and now replacing IHA.

3) Exploratory technique

- Exploratory puncture is one of the most practical methods for corfirming the diagnosis of amboebic liver abscess. *The aspirated*

pus may be examined for the demonstration of trophic forms (trophozoites) of E. histolytica.

- Aspirations from the center of amoebic liver abscess do not show trophozoites, while aspirates from the margins show trophozoites.

459. Amastigote form is seen in?

a) Leishmania

b) Plasmodium

c) Babesia

d) Ascaris

Correct Answer - A
Ans. is 'a' i.e., Leishmania
Leshmania are hemoflagellates which occur in two forms *:?*
Amastigote (aflagellar stage) : It occurs in RE system (reticuloendothelial system) of vertebrates (Man, dog).
Promastigote (flagellar stage) : It is infective form and occurs in gut of sandfly or in artificial cultures.
Promastigote form is transmitted by sandfly (vector is female sand fly).

460. The following infection resembles malignancy ?

a) Echinococcus granulosus

b) E. multilocularis

c) E.vogeli

d) E. oligarthus

Correct Answer - B
Ans. is 'b i.e., E. multilocularis
The chief character of E. multilocularis cyst is its tendency to proliferate, thereby *resembling a neoplasm.*

461. Skin penetration not seen in ?

a) Taenia saginata

b) Nectator americanus

c) Ankylostoma duodenale

d) Strongyloides stercoralis

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

462. Trophozoite of Entamoeba histolytica ?

a) Has eccentric Karyosome

b) Shows erythrocyte in cytosol

c) Central nucleus

d) Non motile

Correct Answer - B
Ans. is 'b' i.e., Shows erythrocyte in cytosol

463. Which of the following is true about P. falciparum

a) James dots are seen

b) Accole forms are seen

c) Relapses are frequent

d) Longest incubation period

Correct Answer - B
Ans. is 'b' i.e., Accole forms are seen
The parasite often attaches itself to the margin or the edge of the host cell, the nucleus and a small part of the cytoplasm remaining almost outside. This is known as form *applique or accole.*
There is no relapse in P. falciparum.
P. falciparum has minimum incubation period (9-14 days).

464. Fungus not isolated in culture ?

a) Cryptococcus

b) Dermatophyte

c) Candida

d) P. jiroveci

Correct Answer - D

Ans. is 'd' i.e., P. jiroveci

Culture of fungi

- **Culture media used in mycology are :**

1. Sabouraud's glucose agar (most common)
2. Czapek - Dox medium
3. Corn meal agar

- Culture media are supplemented with chloramphenicol to minimize bacterial contamination and cycloheximide to reduce contamination with saprophitic fungi.
- Cultures are incubated at 22 - 30°C and 37°C.
- *Rhinosporidium seebri and Pneumocystis jiroveci (formerly P. carinii) can not be cultivated in media.*
- *Malassezia furfur does not grow on regular sabouraud's medium.* It requires complex media to grow.
- Malassezia furfur does not grow on regular sabouraud's medium.
- It requires complex media to grow
- M. furfur is a *lipid dependent fungus* and 1% emulsified olive oil is added to sabouraud medium for its cultivation
- Two media are now widely employed for all malassezia species.

1. Dixon medium
2. Modified dixon medium

465. Endothrix is caused by ?

a) Epidermophyton

b) E. tonsurans

c) T. tonsurans

d) M. Canis

Correct Answer - C
Ans. is `c' i.e., T. tonsurans

466. Most common organism causing fungal infection of oral cavity ?

a) Candida

b) Blastomycosis

c) Aspergillosis

d) Cryptococcus

Correct Answer - A
Ans. is 'a' i.e., Candida
The most prevalent fungal infections in oral cavity are those caused by Candida species, especially C. albicans.
Candidiasis (Moniliasis)
Candidiasis is the most common systemic mycosis.
Candidiasis is an *opportunistic endogenous infection* and is the *most common fungal infection in neutropenic patients.* Candida is the most common fungal infection in immunocompetent persons as well.

467. Sabaroud's medium is used for ?

a) Protozal parasites

b) Nematodes

c) Fungi

d) Anaerobes

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

468. Which of the following immunoglobulins can cross placenta ?

a) IgA

b) IgM

c) IgG

d) IgD

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

- It is the major serum immunoglobulin (80%).
- It is distributed equally between the intravascular and extravascular compartments.
- It contains less carbohydrate than other immunoglobulins.
- It has maximum half life.
- It binds to micro-organisms and enhances their phagocytosis.
- Considered as *general purpose antibody,* protective against those infectious agents which are active in the blood and tissues.
- It is the predominant antibody in secondary antibody response.
- Four subclasses of IgG are there with IgG, is found in greatest amount and IgG_4 in least amount.
- IgG, is directed against polysaccharide antigen so it is important in defence against encapsulated bacteria.
- IgG is the only maternal immunoglobulin, that is normally transported across the placenta and provides natural passive immunity in the newborn.

469. Pentameric structure ?

a) IgM

b) IgG

c) IgA

d) IgD

Correct Answer - A

Ans. is 'a' i.e., Ig M

- IgM is a pentameric immunoglobulin with five, four - peptide subunits. o The subunits are joined together by J chain.

IgM

- *IgM is the earliest immunoglobulin class to be synthesized by the fetus,* begining at 20 weeks of age.
- As it is not transported across the placenta, *the presence of IgM in the fetus or newborn indicates intrauterine infection* and its detection is useful in the diagnosis of congenital infections such as syphilis, rubella and toxoplasmosis.
- It normally circulates as pentamer.
- *It is the oldest immunoglobulin class.*
- *It is the predominant antibody in primary antibody response.*
- It is short lived, disappearing earlier than IgG.. Hence, *its demonstration in serum indicates recent infection.*
- Treatment with 2-mercaptoethanol selectively destroys IgM without affecting IgG. This is a simple method for the differential estimation of IgG and IgM.
- *The isohemagglutinins (blood group anti A, anti B) are usually IgM*
- Being largely confined to the intravascular space, IgM is believed to be responsible for protection against blood invasion by microorganisms.

- *Monomeric IgM is the major antibody receptor on the surface of B lymphocytes for antigen recognition.*
- IgM is an important component of immune complexes in autoimmune diseases e.g. IgM antibodies against IgG in Rheumatoid arthritis.

470. Graft from homozygotic twin is known as ?

a) Autograft

b) Isograft

c) Allograft

d) Xenograft

Correct Answer - B
Ans. is 'b' i.e., Isograft
Graft from homozygotic (identical) twin is called as isograft.
Graft

- A tissue graft is a medical procedure in which tissue from a donor is used to replace missing or damaged tissue on a patient (recipient).

471. Mental Health Act was passed in ?

a) 1982

b) 1987

c) 1971

d) 1950

Correct Answer - B
Ans. is 'b' i.e., 1987

472. Zonal office of Central Drugs Standard Control Organization is at ?

a) Delhi

b) Ghaziabad

c) Banglore

d) Cuttack

Correct Answer - B
Ans. is 'b' i.e., Ghaziabad
The central government have established Four Zonal Offices of Central Drug Standard Control Organization at :-

1. *Mumbai*
2. *Chennai*
3. *Kolkata*
4. *Ghaziabad*

- The zonal offices work in close collabration with state drug control administration and assisst them in securing uniform enforcement of the Drug Act and other connected legislation, on all India basis.

473. The gas responsible for Bhopal gas tragedy was?

a) Methyl isocyanate

b) Potassium isothiocyanate

c) Sodium isothiocyanate

d) Ethyl isothiocyanate

Correct Answer - A
Ans. is 'a' i.e., Methyl isocyanate
The ***Bhopal disaster (Bhopal gas tragedy)*** was a gas leak incident in India that occured on the night of December 2-3, 1984 at the Union Carbide India Limited (UCIL) pesticide plant in Bhopal, MP.
A leak of ***methyl isocyanate*** from the plant resulted in the exposure of hundreds of thousands of people.

474. Which of the following does not show iceberg phenomenon ?

a) Rabies

b) Polio

c) JE

d) Mumps

Correct Answer - A
Ans. is 'a' i.e., Rabies
Iceberg phenomenon of disease is not shown by rabies, tetanus and measles.

475. Health index characteristics are all except ?

a) Validity

b) Reliability

c) Affordability

d) Feasibility

Correct Answer - C
Ans. is 'c' i.e., Affordability
There has been some confusion over terminology: health indicator as compared to health index (plural: indices or indexes).
It has been suggested that in relation to health trends, the term indicator is to be preferred to index, whereas health index is generally considered to be an amalgamation of health indicators (56).
Characteristics of indicators
Indicators have been given scientific respectability: for example ideal indicators.
a) Should be valid, i.e., they should actually measure what they are supposed to measure;
b) Should be reliable and objective, i.e., the answers should be the same if measured by different people in similar circumstances.
c) Should be sensitive, i.e., they should be sensitive to changes in the situation concerned.
d) Should be specific, i.e., they should reflect changes only in the situation concerned,
e) Should be feasible, i.e., they should have the ability to obtain data needed, and;
f) Should be relevant, i.e., they should contribute to the

understanding of the phenomenon of interest.

476. What is a not a criteria to establish causal association ?

a) Temporal association

b) Sensitivity of association

c) Consistency of association

d) Coherence of association

Correct Answer - B
Ans. is `b' i.e., Sensitivity of association

477. Mode of prevention in CHD ?

a) High risk strategy

b) Primordial prevention

c) Secondary prevention

d) Tertiary prevention

Correct Answer - B
Ans. is 'b' i.e., Primordial prevention
Best way to prevent mortality from any disease is to prevent the development of disease.
In case of CHD, primordial prevention is best strategy, which mainly concerns with life style changes.

478. Not included in human development index ?

a) GNI per capita

b) Life expectancy at 1 yr

c) Years of schooling

d) Knowledge

Correct Answer - B
Ans. is 'b' i.e., Life expectancy at 1 year
Life expectancy at birth is a dimension of HDI (not life expectancy at one year).
HUMAN DEVELOPMENT INDEX (HDI)
HDI is a composite index combining indicators representing three dimensions.

479. HDI includes all except ?

a) Income

b) Knowledge

c) Life duration and well being

d) Standard of living

Correct Answer - D
Ans. is 'd' i.e., Standard of living

480. Where and when MDG adopted ?

a) WI-10 1990

b) UN 2000

c) UNICEF 1995

d) ILO 2005

Correct Answer - B

Ans. is 'b' i.e., UN 2000

The millennium development Goals (MDG)

- More recently in September 2000, representive for 189 countries met at the millennium summit in New York, to adopt United Nations Millennium Declaration.
- The goals in the area of development and poverty eradication are now referred to as "Millennium development Goals" (MDGs).
- Governments have set a date of 2015 by which they would meet the MDGs.
- MILLENNIUM DEVELOPMENT GOALS (MDGS - TO BE ACHIEVED BY 2015) :
- Millennium Development Goals (MDGs) is a set of 8 Goals adopted by 189 countries at UN Millennium Summit in September 2000.
- Baseline year was taken as 1990: *'All MDGs have to be achieved by 2015'*
- 3 of 8 goals (Goal 4, 5, 6), 8 of 18 targets and 18 of 48 indicators are *'directly'* health related

1. *Goal 1:* Eradicate extreme poverty and hunger
2. *Goal 2:* Achieve universal primary education
3. *Goal 3:* Promote gender equality and empower women
4. *Goal 4:* Reduce child mortality (Reduce by two-thirds the under-five mortality rate)

5. *Goal 5:* Improve maternal health (Reduce by three-quarters the maternal mortality ratio)
6. *Goal 6:* Combat HIV/AIDS, malaria and other diseases
7. *Goal 7:* Ensure environmental sustainability
8. *Goal 8:* Develop a global partnership for development

481. Millennium Development goals are to be achieved by:
March 2012

a) 2005

b) 2010

c) 2015

d) 2020

Correct Answer - C
Ans: C i.e. 2015
Governments have set a date of 2015 by which they would meet the Millennium Development Goals/ MDGs, i.e. eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality; improve maternal health; combat HIV/ AIDS, malaria and other communicable diseases; ensure environmental sustainability; and develop a global partnership for development.

482. Following is prevented by killed vaccine ?

a) Mumps

b) Measles

c) Rabies

d) Rubella

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

483. Out of 10 relatives exposed to a primary case, of measles, 6 developed measles. Secondary attack rate of measles ?

a) 4/10

b) 6/10

c) 4/6

d) 6/4

Correct Answer - B

Ans. is 'b' i.e., 6/10

Secondary attack rate (SAR)

SAR is defined as *"the number of exposed persons developing the disease within the range of incubation period, following exposure to primary case".*

484. Spread of which disease cannot be controlled by isolation ?

a) Diphtheria

b) Neonatal tetanus

c) Cholera

d) Mumps

Correct Answer - B
Ans. is `b' i.e., Neonatal tetanus

485.

Which of the following was a part of expanded programme of immunization ?

a) Hepatitis B

b) Rubella

c) Pertussis

d) Mumps

Correct Answer - C
Ans. is 'c' i.e., Pertussis
In may 1974, the *WHO* officially launched a global immunization programme, known as *expanded programme of immunization (EPI)* to protect all children of the word against six vaccine-preventable diseases by the year 2000.

486. Chronic carrier state is seen in all except ?

a) Measles

b) Diptheria

c) Typhoid

d) Gonorrhea

Correct Answer - A
Ans. is 'a' i.e., Measles
Chronic carriers are seen in *Typhoid fever, HBV, malaria, gonorrhea, diphtheria, dysentery and cerebrospinal meningitis*

487. Diagnostic power of the test is reflected by ?

a) Sensitivity

b) Specificity

c) Predictive value

d) Population attributable risk

Correct Answer - C

Ans. is 'c' i.e., Predictive value

Predictive accuracy (Predictive value) of screening test

- In addition to sensitivity and specificity, the performance of screening test is measured by its predictive value.
- *Predictive value reflects the diagnostic power of the test.*
- Predictive value depends upon *sensitivity, specificity* and *prevalence.*

i) Positive predictive value (Post test probability of a disease or precision rate).

- It is the probability a patient with positive test result has the disease in question, i.e., the proportion of patients with positive test results who are correctly diagnosed.
- In other words, it is the precentage of the diseased people among those who show positive results.
- For example, if positive predictive value of a test is 50%, that means there is 50% probability a patient with positive tests results has the disease.
- A high positive predictive value indicates that a person with a positive test has the disease → diagnostic power of a screening test to correctly identify the disease.
- It is the most important measure of a diagnostic method as it reflects

the probability that a positive test reflects the underlying condition being tested for.

ii) *Negative predictive value*

- It is the probability that a person with negative test results, is infact healthy.
- In other words the percentage of healthy people among those who show negative test results.
- A high negative predictive value means there is high probability that a negative test rules out the disease → diagnostic power of a screening test to exclude the disease.
- *The sensitivity and specificity are properties of the screening test, while the predictive value is property of both the test and the population under study.*

488. If specificity of test increases ?

a) Low false negative

b) Low true negative

c) More false positive

d) More false negative

Correct Answer - D

Ans. is 'd' i.e., More false negative

- *High sensitivity gives large no. of false positives*
- *High specificity gives large no. of false negatives.*

Remember

- *If a population has more false positive cases :?*

i. *Screening test is more sensitive*

i. *Positive predictive value of the test is low*

i. *Prevalence of disease is low*

- *If a poulation has more false negative cases*

i. *Screenign test is more specific*

i. *Negative predictive value of the test is low*

489. Ratio of incidence among exposed and non exposed is known as ?

a) Risk ratio

b) Odds ratio

c) Attributable risk

d) SAR

Correct Answer - A
Ans. is 'a' i.e., Risk ratio
Relative risk (risk ratio)
Relative risk is the ratio of the incidence of the disease (or death) among exposed and the incidence among nonexposed.

490. Denominator in specific death rate due to coronary artery disease ?

a) 1000 live birth

b) Mid year population

c) Total number of deaths in a community

d) Total number of case population in community

Correct Answer - B

Ans. is 'b' i.e., Mid year population

Crude death rate

- It is the simplest measure of mortality.
- It is defined as *"the number of death (from all causes) per 1000 estimated mid-year population in one year, in a given place".*

491. True about measles vaccine ?

a) Contraindicated in neomycin allergic patients

b) Killed vaccine

c) Given Intramuscularly

d) Provides protection for 5-10 years

Correct Answer - A
Ans. is 'a' i.e., Contraindicated in neomycin allergic patients
Measles vaccine may contain sorbitol and hydrolysed gelatin as stabilizers, as well as a small amount of neomycin
People with a history of an anaphylactic reaction to neomycin, gelatin or other components of the vaccine should not be vaccinated.

492. True about measles vaccine ?

a) Killed vaccine

b) In epidemic vaccine is given at 9 months of age

c) Can cause TSS

d) Duration of protection is 5-10 years

Correct Answer - C

Ans. is 'c' i.e., Can cause TSS

Measles vaccine :

- *Type:* Live attenuated, lyophilized (Freeze dried) vaccine
- ***Strains used:***

1. Edmonston Zagreb Strain (Most Common)
2. Schwartz Strain
3. Moraten Strain

- *Dose:* 0.5 ml
- *Route:* Subcutaneous
- *Site:* Antero-lateral aspect of thigh (middle one-third)
- *Age of administration in National Immunisation schedule (India):* 9 months (can be lowered to 6-9 months in epidemics & malnutrition)
- *Diluent for Reconstitution:* Distilled Water or sterile water
- *Use within 1 hr after reconstitution with diluent*
- Measles (& MMR) vaccine can lead to Toxic Shock Syndrome
- Measles vaccine is contraindicated in pregnancy
- *Cold chain Temperature for storage:* +2 to +8 degree C
- *Protective efficacy:* > 95%
- *Duration of Protection:* Life long
- *IP of vaccine induced measles: 7* days
- Measles immunoglobulin is also available for post exposure prophylaxis.

- The best age for measles vaccination is 9 months.
- 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.

493. Not a strategy for measles elimination ?

a) Mop up: Vaccinate kids left with routine vaccination

b) Catch up: One time nation wide vaccination 9 month- 14 years old children

c) Keep up: Vaccinate > 95% successive birth

d) Follow up: Nationwide vaccination every 2-4 years

Correct Answer - A

Ans. is 'a' i.e., Mop up: Vaccinate kids left with routine vaccination

The priorties of countries persuing measles control include :-

i. Improve routine vaccination coverage level to at least 90%.

i. Active coverage of more than 90% in catch-up and follow-up campaigns or active coverage of more than 90% with routine second dose of measles vaccine.

i. Establish case - based surveillance with laboratory confirmation of suspected cases and virus isolation from all chains of transmission.

. Conduct supplementary vaccination campaign together with administration of vitamin 'A' in high risk areas.

- In India, measles is a major cause of morbidity and a significant contributor to childhood mortality. Prior to the immunization programme, cyclical increase in the incidence of measles were recorded every third year. With the increase in immunization coverage levels, the intervals between cyclic peaks has increased and the intensity of the peak minimized.
- *Epidemic of measles occur if proportion of susceptible children is > 40%*
- *If measles is introduced in a virgin community, it infects > 90% of children.*

- *Eradication of measles requires vaccine coverage >96%*

494. Measles elimination criteria?

a) < 1/1000

b) < 1/10000

c) <1/100000

d) <1/100

Correct Answer - C
Ans. is 'c' i.e., < 1/100000
WHO defines elimination of measles as the absence of endemic measles for a period of 12 months in the presence of adequate surveillance.
One indicater of measles elimination is a sustained measles incidence < 1/100, 000 population. o *In 2005, the World Health Assembly set a goal of achieving a 90% reduction in global measles mortality by 2010 as compared with level in 2000.*

495. Rare complication of measles ?

a) Diarrhoea

b) Pneumonia

c) Otitis media

d) SSPE

Correct Answer - D
Ans. is 'd' i.e., SSPE
Subacute sclerosing panencephalitis (SSPE) is a rare complication of measles, which develops many years after the initial infection -
The most common complications are : measles- associated diarrhea, pneumonia and otitis media *?*

496. Prophylaxis for chicken-pox by varicella-zoster immmunoglobulin, true is ?

a) Should be given within 24 hours

b) Given to newborn contact

c) Can be given with varicella vaccine

d) Can be given in established disease

Correct Answer - B
Ans. is b' i.e., Given to newborn contact
Varicella-Zoster immunoglobulin (VZIG) given within 72 hours of exposure has been recommended for prevention of chickenpox in exposed susceptible individuals particularly in immunosupprressed persons.
These include :?
a) Susceptible persons receiving imunosuppressive therapy
b) Persons with congenital cellular immunodeficiency
c) Persons with acquired immunodeficiency including HIV/AIDS
d) Susceptible and exposed, persons, in particular pregnant women
e) Newborn
f) Premature infants of low birth weight.

- It has no therapeutic value in established disease.
- *VZIG* is given by intramuscular injection in a dose of 12.5 units/kg body weight up to a maximum of 625 units, with a repeat dose in 3 weeks, if a high-risk patient remains exposed.
- Because *VZIG* appears to bind the varicella vaccine, the two should not be given concomitantly.

497. If mother is vaccinated for rubella in preconception period. Chances of rubella infection in the child is after how much period after birth -

a) 1 month

b) 2 months

c) 6 months

d) 12 months

Correct Answer - C
Ans. is 'c' i.e., 6 months
Maternal rubella antibodies (IgG) are transferred from vaccinated/immune mother to child during fetal life.
These antibodies last for 6 months and provide protection.
After this period, the infant is susceptible to rubella.

498. Mutation is seen in ?

a) Polio virus

b) Influenza virus

c) Mumps virus

d) Measles virus

Correct Answer - B

Ans. is 'b' i.e., Influenza virus

A unique feature of the influenza virus is its ability to undergo antigenic variations.

- *Antigenic variability is highest in influenza virus Type A and less in Type B, while it has not been demonstrated in type C.*
- Surface antigens hemagglutinin and neurominidase, undergo independent antigenic variations which may be of Two types.

1) Antigenic drift

- Antigenic change is gradual over a period of time
- The new antigens, though different from the previous antigens, arc yet related to them.
- *Antigenic drift involves point mutation in the gene owing to selection pressure by immunity in the host population*
- *Antigenic drift accounts for the periodic epidemics of influenza.*
- Occurs every 2-3 years in case of Influenza A and every 4-7 years in case of Influenza-B

2) Antigenic shift

- An abrupt, drastic, discontinuous variation in the antigenic structure.
- Result from genetic recombination of human with animal or avian virus.
- Accounts for the major epidemics or pandemics.
- Occurs every 10-15 years.

- Occurs in influenza 'A' only

499. Rapid test used by WHO for tuberculosis ?

a) Quanteferon gold

b) ELISPOT

c) Xpert MTB

d) Sputum AFB

Correct Answer - D
Ans. is 'd' i.e., Sputum AFB
Sputum smear microscopy is the quickest and easiest procedure.
But it lacks both sensitivity and specificity.

- Smears are stained by ziehl-Neelsen acid-fast stain.
- *Sputum smear examination (by AFB stain) is the method of choice for case finding.*

Note : Genexpert MTB/RIF is also a fast test (results within 90 minutes), but it is not routinely recommended by WHO.

500. Case finding in RNTCP is based on -

a) Sputum culture

b) Sputum microscopy

c) X -ray chest

d) Mantoux test / PCR

Correct Answer - B
Ans. is 'b' i.e., Sputum microscopy
Following information has been added in 22nd/e of Park
o Liquid culture method is now gold standard for TB diagnosis. Confirmation is done from biological characteristics of culture growth and selected molecular & biochemical tests. *Rapid immunochromatographic assay (strip speciation tests)* provides a definitive identification of M. tuberculosis and is recommended.
J Cartridge based nucleic acid amplification test : -A second generation NAAT - based TB diagnostic test has sensitivity almost similar to liquid culture.
o In microscopy, following methods helps in early diagnosis of large number of cases : - (i) *Fluorescence microscopy by auramine stain, (ii) Light - emitting diode fluorescence microscopy (LEDs).*
o Drug susceptibility testing provide a definitive diagnosis of drug - resistant TB. A number of techniques are used :
i) Phenotype method (detect drug resistance) : - Three methods are used : proportion, absolute concentration and resistance ratio.
ii) Genotype methods (detect molecular mutations responsible for resistance) : - e.g., Molecular testing for rifampic in resistance.

501. According to RNTPC, case defination on sputum examination -

a) 1 sample positive out of three samples

b) At least two samples positive out of two samples

c) Any of the two or both samples are positive out of two

d) 2 or 3 samples positive out of three

Correct Answer - C
Ans. is 'c' i.e., Any of the two or both samples are positive out of two
Two sputum smear samples are examined.
If any of the two samples or both the samples are positive, the diagnosis of smear-positive TB is confirmed.

502. Tuberculin testing done at ?

a) Dorsum of left arm

b) Dorsum of right arm

c) Ventral aspect of left forearm

d) Ventral aspect right forearm

Correct Answer - C
Ans. is 'c' i.e., Ventral aspect of left forearm
In tuberculin test, injection is given intradermally on flexor (ventral) surface of left forearm, mid-way between elbow & wrist.

503. **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.

504. Roll back malaria programme focused mainly on ?

a) IEC campaigns for community awareness

b) Insecticide treated bed nets

c) Development of larvivorus fishes for eradication of larvae.

d) Presumptive treatment of malaria case

Correct Answer - B
Ans. is 'b' i.e., Insecticide treated bed nets
The main strategies of Roll Back Malaria initiative are :
a) Strengthen health system to ensure better delivery of health care, especially at district and community level.
b) Ensure the proper and expanded use of insecticide treated mosquito nets.
c) Ensure adequate access to basic health care and training of health care workers.
d) Encourage the development of simpler and more effetive means of administering medicines, such as training of village health workers and mothers on early and appropriate treatment of malaria, especially in children.
e) Encourage the development of more effective and new anti-malaria drugs and vaccines.

505. Most important strategy for control of malaria in endemic area -

a) Early treatment of case

b) Chemoprophylexis

c) Vector control

d) Elimination of plasmodium

Correct Answer - C
Ans. is 'c' i.e., Vector control

506. High environmental temperature, best step for malaria control?

a) Remove breeding place

b) Full sleeve cloth

c) Indoor insecticide

d) Early treatment

Correct Answer - A
Ans. is 'a' i.e., Remove breeding place
"The most important step in reducing number of mosquitoes is to eliminate their breeding places" Park

507. OPV can be used if vaccine vial monitor is showing?

a) Colour of outer circle is same as inner square

b) Colour of outer circle is darker than inner square

c) Colour of outer circle is lighter than inner square

d) None of the above

Correct Answer - B
Ans. is 'b' i.e., Colour of outer circle is darker than inner square

508. After finding a case of AFP, next step is ?

a) OPV vaccination

b) Reporting of case

c) Stool culture

d) Chemoprophylaxis

Correct Answer - B
Ans. is 'b' i.e., Reporting of case
Every case of AFP in *any* child under 15 years should be reported.

- *The number of AFP cases reported each year is used as an indicator of a country's ability to detect polio,* even in countries where the disease no longer occurs.

509. Key indicator forAFP surveillance ?

a) At least one case of non-polio AFP per year per 1000 population of under 5 years

b) At least one case of non-polio AFP per year per 100000 population of under 5 year

c) At least one case of non-polio AFP per year per 1000 population of under 15 years

d) At least one case of non-polio AFP per year per 100000 population of under 15 years

Correct Answer - D
Ans. is 'd' i.e., At least one case of non-polio AFP per year per 100000 population of under 15 years

510. SARS most common in ?

a) Coal miners

b) School kids

c) Pregnancy

d) Health care workers

Correct Answer - D
Ans. is 'd' i.e., Health care workers

- Health care workers, especially those involved in procedures generating aerosols, accounted for 21 per cent of all cases.
- Maximum virus excretion from the respiratory tract occurs on about day 10 of illness and then declines.
- The efficiency of transmission appears to be greatest following exposure to severely ill patients or those experiencing rapid clinical deterioration, usually during the second week of illness.
- When symptomatic cases were isolated within 5 days of the onset of illness, few cases of secondary transmission occured.
- There was no evidence that patient transmits infection 10 days after fever has resolved.
- Children are rarely affected by SARS.
- To date, there have been two reported cases of transmission from children to adults and no report of transmission from child to child.
- Three separate epidemiological investigations have not found any evidence of SARS transmission in schools.
- Furthermore, no evidence of SARS has been found in infants of mothers who were infected during pregnancy.

511. Epidemic typhus is transmitted by ?

a) Flea

b) Mite

c) Louse

d) Tick

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

512. Most common STD in India ?

a) HIV

b) Syphilis

c) Candidiasis

d) Bacterial vaginosis

Correct Answer - B
Ans. is 'b' i.e., Syphilis
Among the given options, syphilis is most common.
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.

513. 4 hrs old 14 kg wt, 4 day h/o of loose stools dec urine output, delayed skin pinch, sunken eyes and dry mucosa, calculate fluid required for treating dehydration and maintanence for 4 hrs ?

a) 1200 ml

b) 1050 ml

c) 700 ml

d) 2000 ml

Correct Answer - B
Ans. is 'b' i.e., 1050 ml
The child in question is having some dehydration and should be treated with Plan-B.
According to plan-B, fluid requirement in first 4 hour is 75m1/kg.
Weight of child in question is 14 kg. Thus fluid requirment in first 4 hours is 1050m1 (14 x 75).

514. Drug of choice for chemoprophylaxis in meningococcal meningitis is ?

a) Tetracycline

b) Rifampicin

c) Streptomycin

d) Erythromycin

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

- Meningococcal meningitis is the only type of bacterial meningitis that occurs in epidemic form. o Close contacts of index case (such as other household member, infants in day-care centers, or military recrutis) are at increased risk for developing meningococcal disease. casual contacts such as schoolmates do not appear to be at increased risk.
- *Chemoprophylaxis is indicated only for close contacts.*
- Sulfonamides, once widely employed in chemoprophylaxis, should no longer be used for that purpose because approximately 25% of meningococcal isolates are now resistant to sulfonamide.
- *Rifampicin is the drug of choice to accomplish prophylaxis in close contacts.* The recommended dose in adults is either 600 mg orally every 12 hours for 2 days or 600 mg orally once daily for 4 days (total 4 doses).
- Other drugs for chemoprophylaxis are *ceftriaxone, ciprofloxacin, Azithromycin, minocycline.*

515. DOC for chemoprophylaxis of plague ?

a) Streptomycin

b) Erythromycin

c) Tetracycline

d) Vancomycin

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

516. Salk polio vaccine is ?

a) Killed

b) Live attenuated

c) Subunit

d) Recombinant

Correct Answer - A

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

Inactivated polio (Salk) vaccine

- IPV is usually made from selected wild polio virus (WPV) strains-namely, *Mahoney (Salk type 1), MEF-1 (Salk type 2)* and *Saukett (Salk types)* - that are grown in vero cell culture or in human diploid cells.
- Vaccine contains all the three types of poliovirus, *inactivated by formalin, i.e. killed vaccine.*
- It contains 40, 8 and 32 D antigen units of type 1, 2 and 3 virus respectively (Previous vaccine had 20, 2 and 4 D antigens, according to 20^{th}/e of Park).
- The primary or initial course of immunization consists of *4 inoculation (4 doses).*
- The first 3 doses are given at intervals of 1-2 months and 4' dose 6-12 months after the third dose.
- First dose usually given when the infant is 6 weeks old.
- Additional doses are recommended prior to school entry and then every 5 years until the age of 18.
- *Being an inactivated vaccine, it can be given to immunosuppressed individuals, e.g. AIDS patients.*
- IPV is administered by IM injection (preferred) or subcutaneous injection.

- It can be combined with DPT, Hepatitis, and/or H. influenzae type B vaccine. In the combination vaccines, the alum or the pertussis vaccine, or both have an adjuvant effect.

517. Which is not a barrier method of contraception ?

a) Condom

b) Suppositories

c) Diaphragm

d) IUD

Correct Answer - D
Ans. is 'd' i.e., IUD
Barrier methods

- A variety of barrier or occlusive methods, suitable for both men and women are available.
- The aim of these methods is to prevent live sperm from meeting the ovum.
- Barrier methods are less effective than either the pills or IUD.

518. Third generation IUCD ?

a) Mirena

b) Nova-T

c) Lippe's loop

d) CuT-200

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

519. Fertile period in a women with menstural cycle of 26-31 days ?

a) 8-21 days of cycle

b) 15-25 days of cycle

c) 5-15 days of cycle

d) First 5 days of cycle

Correct Answer - A

Ans. is 'a' i.e., 8-21 days of cycle

Safe Period (rhythm method)

- This is also known as the *calendar method* first described by Ogino.
- The method is based upon the fact that ovulation occurs from 12 to 16 days before the onset of mensturation.
- Calculation is as follows :
- *The shortest cycle minus 18 days gives the first day of the fertile period.*
- *The longest cycle minus 10 days gives the last day of fertile period.*
- For example, if a woman's menstural cycle varies from 26-31 days, the fertile period during which she should not have intercourse would be from the 8th day to 21st day of the menstural cycle, counting day one as the first day of the menstural period.

520. Unmet needs for contraception ?

a) Increases with age group

b) Maximum in women < 20 years age

c) Maximum in women 25-30 years age

d) Mainly for spacing births in women > 30 years

Correct Answer - B
Ans. is 'b' i.e., Maximum in women < 20 years age
Many women who are sexually active would prefer to avoid pregnancy, but nevertheless are not using any method of contraception. These women are considered to have 'unmet need' for family planning.
The concept is usually *applied to married women.*
According to the National Family Health Survey-3, Unmet need for family planning is highest (27·1%) among women below 20 years age and is almost entirely for spacing the births rather than for limiting the births.
It is also relatively high for women in age group 20-24 years (21·1%) with 75% need for spacing and 25% for limiting the birth. Unmet need for contraception among women aged 30 years and above are mostly for limiting birth.

521. Sex ratio is ?

a) Number of males per 100 females

b) Number of males per 1000 females

c) Number of females per 100 males

d) Number of females per 1000 males

Correct Answer - D

Ans. is 'd' i.e., Number of females per 1000 males

Sex ratio

- Sex ratio is defined as the number of *females* per 1000 males. Sex ratio is considered as :-

1. *Favourable :* When females are more than males (> 1000 females per 1000 males).
2. *Unfavourable :* When females are less than males (< 1000 females per 1000 males).
3. *Ideal :* Females are equal in number as males (1000 females per 1000 males).

- *India has sex ratio 940 (It was 933 in 2001). Only two states/UT have favourable sex ratio : Kerala (highest sex ratio of 1084) and Puducherry. Dadra & Nagar Haveli has lowest sex ratio.*
- *Child sex ratio is defined as females (0-6 years age) per 1000 males (0-6 years age).* Child sex ratio of India has reached an all time low of 914 since 1961. The fall has been 13 points from 927 (in 2001) to 914 (in 2011). It is highest in Mizoram and lowest in Harayana.
- *Sex ratio at birth in India is 914.*

522. 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.

523. Child survival index is calculated by ?

a) 1000-IMR/10

b) IMR-1000/10

c) 1000-U5MR/10

d) 1.15MR-1000/10

Correct Answer - C
Ans. is 'c' i.e., 1000-U5MR

524. Reference Indian man, all are true except ?

a) Age 30-39 years

b) Weight 60 kg

c) Height 1·73 meter

d) BMI 20.3

Correct Answer - A
Ans. is 'a' i.e., Age 30-39 years

525. Toxin associated with epidemic dropsy ?

a) BOAA

b) Sanguinarine

c) Aflatoxin

d) Pyrrozolidine

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

526. Crippling fluorosis occurs at what level ?

a) 0.5-0.8 mg/litre

b) 1.5 mg/litre

c) 3-6 mg/litre

d) > 10 mg/litre

Correct Answer - D
Ans. is 'd' i.e., 10 mg/liter
Crippling fluorosis
This occurs at fluoride level > *10 mg/litre (PPM).* Patient is crippled and bed ridden.

527. How many doses of vitamin A are required to treat deficiency ?

a) 1

b) 2

c) 3

d) 4

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

528. DASH diet consists of diet ?

a) Rich in proteins and low in salts

b) Rich in fruits and low-fat dairy products

c) Rich in carbohydrate and low in protein

d) Rich in protein, carbohydrate and fat

Correct Answer - B
Ans. is 'b' i.e., Rich in fruits and low-fat dairy products

529. WHO recommended salt intake ?

a) < 5 gm/d

b) < 6 gm/d

c) < 7 gm/d

d) < 8 gm/d

Correct Answer - A
Ans. is 'a' i.e., < 5 gm/d

530. Maximum fat is found in ?

a) Buffalo milk

b) Goat milk

c) Human milk

d) Cow milk

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

531. Burning feet syndrome is due to deficiency of ?

a) Niacin

b) Folic acid

c) Vitamin B_{12}

d) Pantothenic acid

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

532. Modifiable risk factors for hypertension is ?

a) Genetic factors

b) Age

c) Sex

d) Obesity

Correct Answer - D
Ans. is d i.e., Obesity

533. Silicosis was reported first time in India from ?

a) Banglore

b) Mysore

c) Chennai

d) Aurangabad

Correct Answer - B
Ans. is 'b' i.e., Mysore
Among the occupational diseases, silicosis is the major cause of permanent disability and mortality.
It is caused by inhalation of dust containing free silica or silicon dioxide (Si02).
It was first reported in India from the Kolar gold mines (Mysore) in 1947.
Even since, its occurrence has been uncovered in various other industries, e.g., mining industry (coal, mica, gold, silver, lead, zinc, manganese and other metals), pottery and ceramic industry, sand blasting, metal grinding, building and construction work, rock mining, iron and steel industry and several others.

534. Asbestos used in ?

a) Painting

b) Bakery

c) Cement production

d) Cotton industry

Correct Answer - C
Ans. is 'c' i.e., Cement production
Asbestos is the commercial name given to certain types of fibrous material.
They are silicates of varying composition; the silica is combined with such bases as magnesium, iron, calcium, sodium and the aluminium.
Asbestos is of two types-serpentine or chrysolite variety and the amphibole type.
Ninety per cent of the world's production of asbestos is of the serpentine variety, which is hydrated magnesium silicate, the amphibole type contains little magnesium.
The amphibole type occurs in different varieties, e.g., crocidolite (blue), amosite (brown), and anthrophyllite (white).
Asbestos fibres are usually from 20 to 500 vt in length and 0.5 to 50 p. in diameter.
Asbestos is used in the manufacture of asbestos cement, fire-proof textiles, roof tiling, brake lining, gaskets and several other items.
Asbestos is mined in Andhra Pradesh (Cudappah), Bihar, Jharkhand, Karnataka, and Rajasthan - but most of it is imported from USSR, Canada, US and South Africa.

535. Raiv Gandhi Shramik Kalyan Yojna comes under ?

a) RCH

b) ESI

c) MCH programmer

d) National population policy

Correct Answer - B
Ans. is 'b' i.e., ESI
RAJIV GANDHI SHRAMIK KALYAN YOJNA
The ESI corporation has launched a new Yojna for the employees covered under the ESI scheme. This scheme provides an unemployment allowance for the employees covered under ESI scheme who are rendered unemployed involuntarily due to retrenchment/closure of factory etc. after fulfilling certain eligibility conditions. The scheme came into effect from 1" April, 2005.
As per this scheme, an insured person going out of insurable employment involment involuntarily, on account of closure of a factory or establishment, retrenchment, or permanent invalidity arising out of non-employment injury, after rendering insurable employment and having contributed under the scheme for five or more years, is entitled to claim unemployment allowance for maximum period of 6 months during his/her entire service.
The allowance can be availed in one spell or different spells of not less than one month.
The daily rate of unemployment allowance is the "standard benefit" as specified in the table on standard benefit rates under rule-54 of ESI (Central) Rules, 1950 corresponding to the average daily wage drawn by the insured person.

536. Which is not included in NVBDCP ?

a) Dengue

b) Malaria

c) Japanese encephalitis

d) Plague

Correct Answer - D
Ans. is 'd' i.e., Plague
NVBDCP includes *6 vector borne diseases* of public health importance in India :
1. *Malaria*
2. *Kala-azar*
3. Dengue
4. Japenese encephalitis
5. *Filaria*
6. *Chikungunya fever*

537. Ergonomics?

a) Adjusting the Worker to his job

b) Study of human behavior

c) Study of social mobility

d) None

Correct Answer - A
Ans. is 'a' i.e., Adjusting the Worker to his job
Ergonomics Simply means *"fitting the job to the worker".*
The object of ergonomics is *"to achieve the best mutual adjustment of man and his work, for the improvement of human efficiency and well being".*

538. The type of distribution, if mean 209, median 196, and mode 135 ?

a) Standard curve

b) Positively skewed

c) Negatively skewed

d) J-shaped

Correct Answer - B
Ans. is 'b' i.e., Positively skewed
In question, mean > median > mode → Feature of positively skewed deviation.

539. In positively skewed deviation ?

a) Mean = Median = Mode

b) Mean > Medians > Mode

c) Mode > Median > Mean

d) None of the above

Correct Answer - B
Ans. is 'b' i.e., Mean > Medians > Mode

540. Mean Hb values are compared in two population groups. The best test is ?

a) Paired T test

b) Unpaired T test

c) Chi-square test

d) Fisher's test

Correct Answer - B
Ans. is 'b' i.e., Unpaired T test

541. Dengue hemorrhagic fever is caused by -

a) Type I dengue virus

b) Reinfection with same serotype of dengue virus

c) Reinfection with a different serotype of dengue virus

d) Infection in an immunocompromised host

Correct Answer - C

Ans. is. 'c' i.e. Reinfection with a different serotype of dengue virus

DENGUE FEVER

- 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.
- *Various manifestations of Dengue infection*

  A) Classical dengue fever —

  i) Also known as break bone fever

  ii) Incubation period 2-7 days (3-10 days —> Park)

  iii) Onset is sudden with chills and fever. Fever is usually between 39°c and 40°c temperature returns to normal after 5-6 days or subside on about the 3^{rd} day and rise again after 5-8 days after onset *(saddle back fever).*

  iv) Rashes appear in 80 % of cases during remission or during second febrile phase. The rash lasts for 2 hours to several days and may be followed by desquamation.

B) Dengue Hemorrhagic fever (DHF) ?

- It is a severe form of dengue fever caused by *infection with more than one dengue virus.*
- The severe illness is thought to be due to double infection with more than one dengue virus.
- *Dengue hemorrhagic fever is believed to result from reinfection with a virus of different serotype (due to enhancing antibodies)*
- DHF usally occurs after sequential infection with any two of the four serotypes of dengue virus.
- Sequence of infection may be important; serotype 1 followed by serotype2 is more dangerous than serotype 4 followed by serotype 2.

C) Dengue shock syndrome

542. Young male presents with ear discharge since three years; recently patient developed swelling in neck below and behind the angle of mandible, torticollis; on examination external auditory canal was tilled with granulation tissue. What is the diagnosis ?

a) Luc's abscess

b) Citelli's abscess

c) Bezold's abscess

d) All

Correct Answer - C

Ans. is 'c' i.e., Bezold's abscess

Patient has presence of ear discharge since 3 years - thus patient is suffering from chronic suppurative otitis media. Following CSOM patient developed mastoiditis and following mastoidoitis patient has developed abscess behind the angle of mandible and deep to the sternocleidomastoid leading to torticollis.

Following are the abscesses related to mastoid infection :

1) *Postauricular abscess :-* This is the *commonest subperiosteal abscess* associated with acute mastoiditis. It occurs lateral to the cortex of mastoid in MacEwen's triangle

2) *Bezold abscess :-* Pus passes through mastoid tip and presents as upper neck swelling. The abscess may :-

i) Lies deep to sternocleidomastoid

ii) Follow the posterior belly of diagastric and presents swelling

between mastoid tip and angle of jaw.
iii) Be present in posterior triangle
iv) Reach the parapharyngeal pouch
v) Track down along the carotid vessels.
3) *Zygomatic abscess :-* Infection of zygomatic air cells.
4) *Meatal (Luc's) abscess :-* Pus passes between the antrum and external osseous meatus.
5) *Citelli's abscess :-* Abscess is formed behind the mastoid more towards occipital bone. Some consider it as abscess of *diagastric triangle.*
6) *Parapharyngeal and retropharyngeal abscess.*

543. Lines of Sebileau pass through

a) Floor of orbit and maxillary antrum

b) Floor of nasal cavity and maxillary antrum

c) Floor of orbit and nasal cavity

d) Floor of orbit and roof of mouth

Correct Answer - A

Ledermann's classification of maxillary carcinoma uses two horizontal lines - one passing through the floor of orbits and the other through the floor of the maxillary antra dividing the area into superstructure, mesostructure and infrastructure.

544. Patient presents with mass in paraphaygeal region pushing carotid artery backwards, the likely cause is ?

a) Carotid body tumor

b) Lymph node enlargement

c) Sternocleidomastoid tumor

d) None of the above

Correct Answer - A

Paragangliomas are clusters of neuroendocrine cells associated with the sympathetic and parasympathetic nervous system.
Paraganglioma is the tumor of neuroendocrine cells of these paraganglia that occurs at various body sites including head, neck, thorax and abdomen.
Most common location of paragangliomas is adrenal medulla, where they are referred to as pheochromocytomas.
Other locations are :
1) Paravertebral ganglion (organs of zuckerkandl) and rarely bladder.
2) Paraganglia related to the great vessels of head and neck, so called aorticopulmonary chain, including carotid bodies (most common); ganglion nodosum of vagus nerve; and clusters located about the oral cavity, nose nasopharynx, larynx, and orbit.
Note: Paragangliomas arising from the carotid body typically pushes the great vessels of the aorticopulmonary chain, thus the most likely diagnosis in this patient is a carotid body tumor.

545. If a patient gets an attack of vertigo/dizziness by loud noise, he is having ?

a) Tullio phenomenon

b) Dysplacusis

c) Hyperacusis

d) Paracusis

Correct Answer - A
Ans. is 'a' i.e., Tullio phenomenon
Hyperacusis refers to sensation of discomfort or pain on exposure to normal sounds. It is seen in *injury* to nerve to stapedius and in case of *congenital syphilis (Hennebert sign).*
Displacusis is a condition where same tone is heard as notes of different pitch in either ear.
Paracusis willisii is a condition where patient hears a sound better in presence of background noise. It is seen in *otosclerosis.*
Tullio phenomenon is a condition where the subject gets attack of vertigo/dizziness by loud sounds.It is seen in *labyrinthine fistula and after fenestration surgery.*

546. Frequency of Carhart's notch is ?

a) 1000 Hz

b) 2000 Hz

c) 3000 Hz

d) 4000 Hz

Correct Answer - B
Ans. is 'b' i.e., 2000 Hz

- *Dip in bone conduction in otosclerosis (Carhart's notch) → 2000 Hz*
- *Dip in noise induced hearing loss (Acoustic dip) → 4000 Hz*
- In otosclerosis bone conduction is usually normal (as would be in cases of conductive hearing loss). However, some cases show a dip in bone conduction on audiogram which is maximum at 2000 Hz (Cahart's notch).
- In NIHL both bone conduction and air conduction are defective (as would be in SNHL) and there is a typical notch (acoustic dip) at 4000 Hz, both for air and bone conduction.
- So, Cahart's notch of otosclerosis is a dip for bone conduction, while acoustic dip of NIHL is for both air as well as bone conduction.

547. Cranial nerve most commonly involved in malignant otitis externa ?

a) 3rd

b) 4th

c) 6th

d) 7th

Correct Answer - D
Ans. is'd' i.e., 7th

Malignant otitis externa

- Malignant otitis externa, also called necrotizing external otitis, is a misnomer as it is not a neoplastic condition, rather it is an infectious condition. Malignant otitis externa is a disorder involving inflammation and damage of the bones and cartilage at the base of skull in temporal bone as a result of spread of infection from outer ear. Malignant otitis externa is often caused by difficult to treat bacteria such as pseudomonas aeruginosa. Only rare cases of malignant otitis externa due to S.aureus, Proteus mirabilis and Aspergillus fumigatus have been reported. The infection spreads from the floor of the ear canal to the nearby tissues and into the bones at the base of the skull. The infection and inflammation may damage or destroy the bones. The infection may spread more and affect the cranial nerves, brain, or other parts of the body.
- Predisposing factors for malignant otitis externa
- Elderly diabetics (most common predisposing factor)
- Individuals with altered immune function (immunodeficiency)
- Chemotherapy
- Clinical features of malignant otitis externa

- Severe pain:- inside the ear and may get worse when moving head.
- Granulation tissue in the external auditory canal, at the junction of bony and cartilagenous part.
- Drainage from the ear - yellow, yellow - green, foul smelling, persistent.
- Fever
- Itching of ear or ear canal
- Troubled swallowing & weakness of face.
- Complications
- Cranial nerve palsies :- most commonly facial nerve is involved. Other cranial nerves can also be involved (glossopharyngeal, vagus, spinal accessory, hypoglossal, abducens, trigeminal).
- Jugular venous thrombosis
- Cavernous sinus thrombosis
- Meningitis
- Treatment of malignant otitis externa
- In all cases, the external ear canal is cleansed and a biopsy specimen of the granulation tissue sent for culture. IV antibiotics is directed against the offending organism. For Pseudomonas aeruginosa, the most common pathogen, the regimen involves an antipseudomonal penicillin or cephalosporin (r generation piperacillin or ceftazidime) with an aminoglycoside. A fluoroquinolone antibiotic can be used in place of the aminoglycoside. Ear drops
- containing antipseudomonal antibiotic e.g. ciproflaxacin plus a glucocorticoid is also used. Early cases can be managed with oral and otic fluoroquinolones only. Extensive surgical debridement once an important part of the treatment is now rarely needed.

548. Bilateral Rinne test +ve and Weber test lateralized to right with a shortened Schwabach test on left side suggests ?

a) Left middle ear pathology

b) Right middle ear pathology

c) Left inner ear pathology

d) Right inner ear pathology

Correct Answer - C
Ans. is 'c' i.e., Left inner ear pathology

549. Referred ear pain may travel through all except?

a) Trigeminal nerve

b) Glossopharyngeal nerve

c) Abducens nerve

d) Vagus nerve

Correct Answer - C

Ans. is 'c' i.e., Abducens nerve

Referred otalgia

- As ear receives nerve supply from Vth (auriculotemporal branch), IXth (tympanic branch) and Xth (auricular branch) cranial nerves; and from C_2 (lesser occipital) and C_2 and C_3 (greater auricular), pain may be referred from these remote areas:

1. Via Vth cranial nerve

1. Dental : - Caries tooth, apical abscess, impacted molar, malocclusion.
2. Oral cavity : - Benign or malignant ulcerative lesions of oral cavity or tongue.
3. Temporomandibular joint disorders : - Bruxism, osteoarthritis, recurrent dislocation, ill-fitting denture.
4. Sphenopalatine neuralgia

- Vi intensity will hear it. Therefore, if identical vibrating tuning forks are held at equal distances from both ears they are heard in both ears. However, if one tuning fork is moved closer to one ear the person hears only that fork although the other fork is still vibrating sufficiently for him to hear. In stenger test, two vibrating tuning forks are held equidistant from either ear. If the patient is claiming

deafness in his left ear he will clain to hear only the fork on his right side. The fork on the left side is moved closer. If the patient is feigning deafness he will perceive only the tuning fork on the left side and will claim not to hear anything. If the patient has a genuine hearing loss on the left he will still hear the tuning fork on the right side.

2. Teal test

- This can be used when the patient admits to hearing bone conduction in his 'deaf' ear. The examiner stands behind the patient and applies a tuning fork to the mastoid process of his 'deaf' ear. The patient admits to
- a IXth cranial nerve

.. Oropharynx : - Acute tonsillitis, peritonsillar abscess, tonsillectomy. Benign or malignant ulcers of soft palate, tonsil and its pillars.

2. Base of tongue : - Tuberculosis or malignancy

3. Elongated styloid process.

3.Via Xth cranial cerve :

- Malignancy or ulcerative lesion of vallecula, epiglottis, larynx or laryngopharynx, oesophagus.

4. Via C_2 and C_3 spinal nerves :

- Cervical spondylosis, injuries of cervical spine, caries spine.

550. Otitic Barotrauma occurs while ?

a) Ascending in Aircraft

b) When ambient pressure is decreasing

c) Underwater diving

d) All of the above

Correct Answer - C
Ans. is `c' i.e., Underwater diving
Otitic Barotrauma
This condition is seen *when the ambient pressure is rising,* e.g. in scuba diving *(underwater diving), descending in an aircraft,* or compression in pressure chamber.
It occurs due to pressure differences between the inside and outside of the eardrum.
Clinical features
Ear discomfort or pain, hearing loss, and tinnitus are common
Vertigo is uncommon
Otoscopy findings are :-
Congested and retracted tympanic membrane
Blood may extravasate into middle ear producing haemotympanum
On examination there is conductive deafness.
Pathogenesis of otitic barotrauma
The middle ear pressure is normally maintained at a level similar to that of the atmosphere by the *function of Eustachian tube* which allows passage of air from middle ear to pharynx. Sudden or dramatic changes of external pressure may defeat this mechanism and cause injury to middle ear. *When atmospheric pressure is higher than that of middle ear by critical level of 90 mm Hg,* eustachian tube gets locked as the soft tissues of pharyngeal end of

the tube are forced into the lumen by high atmospheric pressure. This results in sudden negative pressure in the middle ear which causes retraction of tympanic membrane, hyperemia, transudation with hemorrhage and development of Aero-otitis media (barotrauma).

At pressure difference >100 to 500 mm Hg, tympanic membrane can rupture when the pressure difference is more than 100 mg Hg, tympanic membrane can rupture.

Treatment of otitic Barotrauma

Routine self treatment of pain associated with changing pressure in air craft includes *chewing gum, attempting to yawn & swallow, blowing against closed nostrils, and using decongestant nasal sprays.* The aim is to restore middle ear areation. *Catheterization* or *politzerization* can also be used. If the eustachian tube will not open with other treatments, surgery may be necessory. *Myringotomy and aspiration of fluid* is the surgical procedure used.

551. Keratinizing squamous cell carcinoma of nasopharynx is ?

a) Type I

b) Type II

c) Type III

d) Type IV

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

552. True about central nystagmus ?

a) Changing direction

b) Not suppressed by optic fixation

c) Horizontal or vertical

d) All of the above

Correct Answer - D

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

Nystagmus

- Nystagmus is *rhythmic oscillatory movement* of eye.
- Nystagmus has following characteristics :?

1. Rapid,
2. Involuntary,
3. Repetitive

- Nystagmus may be *:?*

1. Side to side **(horizontal nystagmus)**
2. Up and down **(verticle nystagmus)**
3. Rotary

- Vestibular nystagmus has two components, i.e. a slow and a fast.
- The direction of nystagmus is indicated by the direction of fast component.
- Vestibular nystagmus may be :?

1. Peripheral :- due to lesion of labyrinth or VIII nerve.
2. Central :- due to lesion of vestibular nuclei, brainstem or cerebellum.

i. Peripheral nystagmus

- Diminshes or suppresses with gaze fixation (optic fixation)
- Enhances in darkness or by use of Frenzel glasses
- Unidirectional fast component
- Direction is typically horzonto - rotary, not purely horizontal or rotary

and not vertical

- Direction is fixed towards undermost ear
- Present in one head position

ii. Central nystagmus

- **Not suppressed by optic fixation**
- Fast component can be unidirectional or bidirectional
- Can be horizontal, vertical or rotary
- **Direction is changing**
- Present in multiple head positions

553. External auditory canal exostosis occurs due to?

a) Repeated instrumentation

b) Recurrent otitis externa

c) Wide external auditor meatus

d) Recurrent proplonged cold water exposure

Correct Answer - D
Ans. is 'd' i.e., Recurrent proplonged cold water exposure

- **Ear canal exostoses** are bilateral, usually symmetric multiple bony growths occurring in the medial portion of the external auditory canal.
- Also known as **surfer's ear**, exostosis is thought to be a reactive process from **repeated stimulation by cold water** and is much more common than external auditory osteoma

554. Scutum is ?

a) Bony part of outer attic wall

b) Bony part of inner attic wall

c) Cartilaginous part of outer attic wall

d) Cartilagenous part of inner attic wall

Correct Answer - A
Ans. is 'a' i.e., Bony part of outer attic wall
The lateral wall of the middle ear is formed largely by the tympanic membrane and to a lesser extent by the bony outer attic wall called the scutum.

555. Patient presents to us 3 days after bell's palsy what is the initial treatment for the patient ?

a) Medical management

b) Nerve decompression

c) Wait and watch

d) Electrical stimulation

Correct Answer - A
Ans. is 'a' i.e., Medical management
Treatment of Bell's palsy

- Treatment of Bell's palsy is divided into three :- (1) Medical treatment, (2) Physical treatment, (3) Surgical treatment.

1) Medical treatment
Prednisolone (steroid) is the drug of choice and is started at initial visit. Initiation of therapy during first 24 hours of symptom confers a higher likelihood of recovery. *Antiviral therapy (Acyclovir)* is a newer adjunct in treating acute facial palsy of viral origin (both Bell's palsy and Ramsay hunt syndrome).
Most surgeons these days advocate *combination of steroids and antiviral drugs.*
2) Physical treatment
Physical treatment includes : -
i) Eye care :- Artificial tear drops, ocular ointment and use of sunglasses to prevent eye complication due to dry eye.
ii) Electric stimulation :- To maintain membrane conductivity and reduce muscle atrophy.
If the patient of Bell's palsy is not responding to conservative treatment, electrodiagnostic study (electrophysiological study)

treatment, electrodiagnostic study (electrophysiological study) should be done. Electrodiagnostic study includes, electromyography (EMG), Electroneurography (ENG), minimal excitibility test and maximal excitibility test. Surgery is reserved for those who meet electrodiagnostic (electrophysiological) study criteria or are worsening on medial treatment.

3) Surgical treatment

Nerve decompression relieves pressure on the nerve fibers and thus improves the microcirculation of the nerve.Usually *vertical and tympanic segments of nerve* are decompressed. However, some worker's suggest total decompression including labyrinthine segment. *Decompression is done in cases who have a poor prognosis for complete recovery with medical therapy alone or in cases who do not respond to medical therapy after 8-12 weeks.*

556. Fluctuating deafness is seen in

a) Meniers disease

b) Otosclerosis

c) CSOM

d) ASOM

Correct Answer - A

Meniere's disease is a disorder of the inner ear which is characterized by :-
i) Episodes of vertigo
ii) Tinnitus (ringing in the ears)
iii) Fluctuating sensorineural hearing loss
iv) Feeling of fullness or pressure in ear (aural fullness)

557. Rhinosporidiosis is caused by:

a) Fungus

b) Protozoa

c) Aquatic bacterium

d) Protista

Correct Answer - A
Ans. a. Fungus

558. Most common presentation of adult rhinosporidiosis is-

a) Halitosis

b) Pain

c) Anosmia

d) Polypoidal mass

Correct Answer - D
Rhinosporidiosis presents as **soft leafy polypoidal mass.**

559. All of the following are causes of saddle nose deformity except

a) Trauma

b) Hematoma

c) Leprosy

d) Sarcoidosis

Correct Answer - D

Saddle nose (Depressed nose)

- Nasal dorsum is depressed (sagging of the bridge of nose).
- Depressed nasal dorsum may involve either bony, cartilaginous or both bony and cartilaginous components.
- Most common etiology : Nasal trauma.
- Causes are hematoma, excessive surgical removal, trauma, syphilis, abscess, Leprosy, and tuberculosis.

560. True about nasal myiasis ?

a) Commonly occurs in ethmoidal polys patient

b) Results from the ova of fly chrysomia

c) Treated by nasal saline instillation

d) Cannot cause death of the patient

Correct Answer - B

Ans. is 'b' i.e., Results from the ova of fly chrysomia

Nasal myiasis (Maggots in nose)

- It results from the presence of ova of flies particularly chrysomia species in the nose which produce ulceration and destruction of nasal structure. Mostly seen in atrophic rhinitis when the mucosa becomes insensitive to flies laying eggs inside.

Clinical features

- *Initial symptoms (3-4 days maggots) :-* Intense irritation, sneezing, headache, blood stained disharge, lacrimation.
- Later :- Maggots may crawl out of nose and there is foul smell.

Complications

- Destruction of nose, sinuses, soft tissues of face, palate and eyeball. Fistulae in nose and palate. Death occurs due to meningitis.

Treatment

- Chloroform water or vapor must be instilled in order to anaesthetize or kill the maggots and so release their grip from the skin.

561. Torrential bleed during tonsillectomy is due to ?

a) Facial artery

b) Tonsilar artery

c) Paratonsillar vein

d) None

Correct Answer - C

Ans. is 'c' i.e., Paratonsillar vein

"Excessive bleeding at the time of operation usually arises because of trauma to an aberrant vessel or paratonsillar vein".

Complications of tonsillectomy

Complications of tonsillectomy may be :-

i) Immediate

ii) Delayed

Immediate complications

1) Primary haemorrhage Occurs at the time of operation. It can be controlled by pressure, ligation or electrocoagulation of the bleeding vessels.

2) Reactionary haemorrhage : Occurs within a period of 24 hours.

3) Injury to tonsillar pillars, uvula, soft palate, tongue or superior constrictor muscle due to bad surgical technique.

4) Injury to teeth.

5) Aspiration of blood.

6) Facial oedema : Some patients get oedema of the face particularly of the eyelids.

7) Surgical emphysema

Dalaved complications

1) Seconclaty haemorrhage : Usually seen between the 5^{th} to 10^{th}

post-operative day. It is the result of sepsis and premature separation of the membrane. Usually, it is heralded by bloodstained sputum but may be profuse.

2) Infection : Infection of tonsillar fossa may lead to parapharyngeal abscess or otitis media.

3) Lung complications : Aspiration of blood, mucus or tissue fragments may cause atelectasis or lung abscess.

4) Scarring in soft palate and pillars.

5) Tonsillar remnants : Tonsil tags or tissue, left due to inadequate surgery, may get repeatedly infected.

6) Hypertrophy of lingual tonsil : This is a late complication and is compensatory to loss of palatine tonsils.

562. Ludwigs angina usually begins in ?

a) Submandibular space

b) Sublingual space

c) Parotid space

d) Retropharyngeal space

Correct Answer - A
Ans. is 'a' i.e., Submandibular space
Ludwig's angina is a *rapidly spreading bilateral cellulitis* that involves the floor of mouth, under the tongue.
Floor of mouth is comprised of sublingual space, submandibular space and submental space.
Ludwig's angina usually begins in the submandibular space, and then rapidly spreads to involve the *subligual space,* usually on a bilateral basis.
Most common cause is infection of the root of the teeth (Dental infection), especially 2nd and 3nd mandibular molar.
Other causes are mouth injury, mandibular fracture, and submandibular sialadenitis.

563. Most common cause of Croup ?

a) H influenza

b) S pneumoniae

c) Influenza virus

d) Parainfluenza virus

Correct Answer - D

Ans. is `d.' i.e., Parainfluenza virus

Croup (Laryngotracheobronchitis)

- Laryngotracheobronchitis is the *most common infectious cause of obstruction in children* usually occurring between the ages of 6 months and 3 years.
- *Male children (boys) are characteristically more frequently involved than females (girls)*

Etiology

- It is a *viral infection* most frequently caused by *Parainfluenza virus*

Pathology

- *The most characteristic pathological feature is edema formation in the subglottic area*
- The loose areolar tissue in the subglottic area swells up and causes predominant signs of upper airway obstruction.

Presentation

- Gradual onset with a *prodrome of upper respiratory symptoms*
- Hoarseness and *barking cough* (croupy cough)
- *Stridor* (initially inspiratory than biphasic)
- *Fever* is usually low grade (or absent) although may occasionally be high grade
- Droolings is characteristically absent and there is no dysphagia (seen in epiglottitis)

- Imaging (X ray)
- Symmetric 'steeple' or 'funnel shaped' narrowing of the subglottic region (steeple sign)
- Hypopharyngeal widening or distension
- Normal epiglottis and aryepiglottic folds

Treatment

- *Mild symptoms (barking cough but no stridor at rest)*
- Supportive therapy alone with humified oxygen, oral hydration and minimal handling.
- *Moderate symptoms (barking cough with stridor at rest)*
- Active intervention with humified oxygen, Nebulized racemic epinephrine and glucocorticoids (steroids).
- *Severe symptoms (impending respiratory failure)*
- Require an artificial airway (Intubation with endotracheal tube or tracheostomy may be required).
- *Antibiotics are not routinely indicated in the treatment of Acute Laryngotracheobronchitis. Their use is limited if there is evidence of secondary bacterial infection.*

564. An early diabetic has left sided orbital cellulitis CT scan of paranasal sinus shows evidence of left maxillary sinusitis. Gram stained smear of the orbital exudate shows irregularly branching septate hyphae. The following is most likely etiological agent:

a) *Aspergillus*

b) *Rhizopus*

c) Mu*cor*

d) *Candida*

Correct Answer - A

Ans. (a) *Aspergillus Ref. Ananthanarayan 8/e,* p 613, *9/e, p 609; Harrison 19/e, p 1345 - 1347, 18/e, p 1658*

"Presence of branched septate hyphae in a patient of orbital cellulitis (occur as complication of sinusitis) suggest Aspergillus."

Aspergillus Sinusitis occur in three forms:

1. Ball of hyphae may form in chronically obstructed paranasal sinus, without tissue invasion.
2. A chronic fibrosing granulomatous inflammation begin in sinus and spread slowly to the orbit and brain.
3. Allergic fungal sinusitis

Mucor and Rhizopus belong to family Zygomycetes and have non-septate hyphae.

565. Materials used for injection thyroplasty are ?

a) Collagen

b) Acellular miconized human dermis

c) Gelatin powder

d) All the above

Correct Answer - D
Ans. is 'd' i.e., All the above
Injection thyroplasty accomplishes medicalization of the immobile vocal cord by injecting the cord directly to close an identified glottis gap.
Many materials are currently used for injection thyroplasty including fat, fascia, gelatin powder, collagen, and miconized acellular human dermis.

566.

In Maxillary carcinoma of a 60 year old patient involving anterolateral part of maxilla, the preferred treatment is

a) Radiotherapy only

b) Total/extended Maxillectomy followed by radiotherapy

c) Radiotherapy followed by total/extended maxillectomy

d) Total/extended maxillectomy alone

Correct Answer - C

Paranasal sinus cancer is uncommon and represents only 0·2 to 0·8% of all malignancies.

- Cancer of paranasal sinus constitutes 3% of all carcinomas of the aerodigestive tract.
- The majority of paranasal sinus malignancies (50-80%) originate within the maxillary sinus antrum. Malignancies rarely occur within the other sinuses and originate in the ethmoid, frontal, and sphenoid sinuses in 10%, 1% and 1% respectively.
- The cause of parasinus malignancy is unknown. However several risk factors have been associated and therefore it is seen more commonly in people working in hardwood furniture industry, nickel refining, leather work, and manufacturer of mustard gas.
- More than 80% of the malignant tumours are of squamous cell variety. Rest are adenocarcinoma, adenoid cystic carcinoma, melanoma, and various type of sarcomas.
- Workers of furniture industry develop adenocarcinoma of the Ethmoids and upper nasal cavity. While those engaged in Nickel refining get squamous cell and Anaplastic carcinoma.

Clinical features for maxillary carcinoma

- It is seen more commonly in the 7th decade of life.
- Males are affected more commonly than females.
- Early features of maxillary sinus malignancy are nasal stuffiness, blood-stained nasal discharge, facial paraesthesias or pain and epiphora. These symptoms may be missed or simply treated as sinusitis. Late features will depend on the direction of spread and extent of growth.
- Medial spread to nasal cavity gives rise to nasal obstruction, discharge and epistaxis. It may also spread into anterior and posterior ethmoid sinuses and that is why most antral malignancies are antroethmoidal in nature.
- Anterior spread causes swelling of cheeks.
- Inferior spread leads to expansion of alveolus with dental pain, loosening of teeth, poor fitting dentures, ulceration of gingiva.
- Superior spread invades the orbit causing proptosis, diplopia, ocular pain and epiphora.
- Posterior spread is into pterygomaxillary fossa, pterygoid plate and the pterygoid muscles causing trismus.
- Lymphatic spread in maxillary carcinoma is rare and occurs only in the late stages.
- Most commonly involved lymph node is submandibular lymph node followed by jugular nodes.

Treatment of maxillary carcinoma

- For squamous cell carcinoma, the treatment of choice is a combination of radiotherapy and surgery.
- Radiotherapy can be given before or after surgery. Very often, a full course of pre-operative telecobalt therapy is given, followed 4 - 6 weeks later by surgical excision of the growth by total or extended maxillectomy.

567. Treatment of choice for laryngeal carcinoma of glottis extending to supraglottic region with vocal cord fixation with papable solitary ipsilateral lymph node is ?

a) Conservative laryngectomy

b) Total laryngectomy

c) Total laryngectomy with radical neck dissection

d) Palliative therapy

Correct Answer - C

- Patient with with glottis carcinoma extending to the supra glottis region along with vocal cord fixation (bad prognostic sign; involvement of thyroarytenoid muscle) belongs to T3 stage og glottis carcinoma
- Single ipsilateral lymph node of 2 cm size signifies N1 nodal status
- And there is no evidence of distal metastases so MO
- This patient belongs to T3N1 MO.
- Treatment of choice in such patient is total laryngectomy with radical neck dissection.

STAGING OF LARYNX CANCER

- Treatment of larynx cancer depends upon the stage of the tumor.
- Therefore, one should know the TNM staging (TNM classification) of large cancer.

568. Lower lid surgery in which plication of the lower lid retractors is done is called ?

a) Quickert

b) Jones

c) Weiss

d) Modified wheelers

Correct Answer - B

Ans. is 'b' i.e., Jones

Jones, Rech And Wobig Operation

- It is performed for severe cases or recurrent cases of entropion.
- In this operation the inferior lid retractors are straightened by tucking or plication procedure.

569. Corneal endothelium seen by ?

a) Pachymeter

b) Keratometer

c) Tonometer

d) Slit lamp bio-microscope

Correct Answer - D

Ans. is 'd' i.e., Slit lamp bio-microscope

Corneal Endothelium:

- It consists of single layer of polygonal (mainly hexagonal cells).
- They are visualized by slit lamp bio-microscope and appear like mosaic.
- The cell density is 3000 cells/ mm2 in young adults and deceases with age.
- These cells contain active pump mechanism.

Note: Confocal microscope can be used to study all layers of retina.

570. 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

571. Confocal scanning laser ophthalmoscope uses ?

a) Infrared laser

b) Diode laser

c) Excimerlaser

d) YAG laser

Correct Answer - B

Ans. is 'b' i.e., Diode laser

Confocal scanning laser ophthalmoscope

- It is an instrument using confocal laser system to provide and analysethree dimentional image of the optic nerve head, peripapillary retina, and macular region.
- It uses a 670 nm diode laser and measures the amount of light reflected froma series of 16 - 64 sections in depth and reconstructs them to show the anatomy of the optic nerve head and reconstruct the anatomy of the retinal nerve fiber layer.

572. The colour of fluorescein staining in corneal ulcer is:

a) Yellow

b) Blue

c) Royal blue

d) Green

Correct Answer - D
Ans. Green
Florescein dye (in fluorescein angiography) --> used for retinal vasculatures (retina)
o Fluorescein stain --> used to stain cornea.

573. Axial length of eye ball is measured by ?

a) A mode Ultrasonography

b) B mode Ultrasonography

c) M mode Ultrasonography

d) Both a and b

Correct Answer - A

Ans. is 'a' i.e., A mode Ultrasonography

Ultrasonographv in Ophthalmology

A Mode

- Transducer is coupled directly to the eye through the use of methyl cellulose.
- Recording are done in a graphic mode. Height of the recorded spike on vertical axis is a measure of the amplitude of the echo, the position of the spike along the horizontal axis indicates the arrival of the echo on the tranducer.
- Diagnosis is based on the basis of amplitude, position, extent and movement of the abnormal echoes alonwith the sound attenuating properties of the abnormality.
- It has a special role in biometry i.e. axial length which is very essential for surgical planning. B mode
- The transducer is coupled to the eye by either the gel applied to the closed lid or by a saline bath
- Is is a display of two - dimensional cross sectional images.
- The echoes in B scan are displayed as spots and the brightness of echoes indicates its amplitude.

574. Maddox rod test is used for testing ?

a) Macular function

b) Lens opacity

c) Amount of tear production

d) Vitreous hemorrhage

Correct Answer - A
Ans. is 'a' i.e., Macular function
These tests are:
1. Simple macular function tests
2. Two point disctimination test (Cardboard test)
3. Maddox rod test
4. Coloured light test
5. Modified photostress test
6. Entoptic view test
7. Amsler grid test

575. Power of reduced eye is ?

a) 55 D

b) 60 D

c) 65 D

d) 70 D

Correct Answer - B

Ans. is b' i.e., 60 D

Reduced eve (Reduced schematic eye)

- In schematic model, the optical system of eye behaves like a combination of lenses.
- The reduced schematic eye treats the eye as if it were a single refracting element consisting of an ideal spherical surface separating two media of refractive indices of 1.00 (air in external environment) and 1.33 (eye as a whole).
- So, in reduced eye, the entire system (of eye) can be regarded as one lens with one optical centre which lies in the posterior part of crystalline lens.
- *The diopteric power of reduced eye is + 60D, of which + 44D is contributed by cornea and + 16D by the crystalline lens.*
- Reduced eye concept was introduced by Listing, therefore, it is also referred to as Listing's reduced eye.

576. Refractive index of vitreous humor ?

a) 1

b) 1-30

c) 14

d) 1.336

Correct Answer - D
Ans. is 'd' i.e., 1.336

577. Laser capsulotomy is treatment of choice for ?

a) POAG

b) Phacolytic glaucoma

c) Posterior capsular after cataract

d) Closed angle glaucoma

Correct Answer - C
Ans. is 'c' i.e., Posterior capsular after cataract
Thin membranous after cataract and thickened posterior capsule are best treated by YAG-laser capsulotomy or discission with cystitome or Zeigler's knife.

578. Identify the refractive error:

a) Myopia

b) Hypermetropia

c) Compound astigmatism

d) Mixed astigmatism

Correct Answer - A
Ans. a. Myopia

- In the given image, incident parallel rays come to a focus anterior to the light-sensitive layer of the retina, seen in myopia.
- "Myopia, also known as 'short sight', is that dioptric condition of the eye in which, with the accommodation at rest, incident parallel rays come to a focus anterior to the light-sensitive layer of the retina. The majority of cases merely result as variants in the frequency curve of axial length and curvature, the former being the more important, although curvature myopia occurs comtnonly as a factor in astigmatism."

579. What is irregular astigmatism ?

a) Perpendicular principal meridians

b) Non perpendicular principal meridians

c) Any of the above

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Non perpendicular principal meridians

ASTIGMATISM

- Astigmatism is a type of refractive error wherein the refraction varies in the different meridia. Consequently, the rays of light entering in the eye cannot converge to a point focus but form focal lines. The refractive error of the astigmatic eye stems from a difference in degree of curvature refraction of the two different meridians (i.e., the eye has different focal point in different planes). For example, the image may be clearly focused on retina in the horizontal plane, but not in the vertical plane.
- The most common cause of astigmatism is abnormality of corneal curvature. Other less common causes are *lenticular* (curvature abnormality of lens,oblique position of lens) and retinal (oblique placement of macula).

Types of astigmatism

A) Based on axis of the principal meridians

1) Regular stigmatism : Principal meridians are perpendicular

- With-the-rule astigmatism-the vertical meridian is steepest.
- Against-the-rule astigmatism-the horizontal meridian is steepest.
- Oblique astigmatism-the steepest curve lies in between 120 and 150 degrees and 30 and 60 degrees.

2) Irregular astigmatism - principal meridians are not perpendicular.

B) Based on focus of the principal meridians

B) Based on focus of the principal meridians

1) *Simple astigmatism*

- Simple hyperopic astigmatism - first focal line is on retina while the second is located behind the retina
- Simple myopic astigmatism - first focal line is in front of the retina while the second is on the retina.

2) Compound astigmatism

- Compound hyperopic astigmatism-both focal lines are located behind the retina.
- Compound myopic astigmatism-both focal lines are located in front of the retina.

3) Mixed astigmatism-focal lines are on both sides of the retina (straddling the retina).

Treatment ofAstigmatism

- Treatment of astigmatism consists : -

i. *Optical treatment :* - It consists of *cylindrical power spectacles* or *contact lens.* Types of contact lenses used are *permeable contact lens, Soft toric contact lens* (for high degree astigmatism), hybrid lens, i.e., soft on hard lens, hard contact lens.

i. *Surgical treatment :* - Non-laser (astigmatic keratotomy) or laser (PRK, LASIK).

580. Following are the causes of painless sudden onset of loss of vision except ?

a) Acute congestive glaucoma

b) Vitreous hemorrhage

c) CRAO

d) Central serous retinopathy

Correct Answer - A
Ans. is 'a' i.e., Acute congestive glaucoma
Acute congestive glaucoma causes sudden painful loss of vision.

581. Disciform herpatic keratitis involves ?

a) Epithelium

b) Descmet membrane

c) Endothelium

d) Basment membrane

Correct Answer - C
Ans. is 'c' i.e., Endothelium
Herpetic Keratitis
Most of the ocular infection are caused by HSV-1 except in neonates where eye infection can be caused by HSV2 through infected genitalia of mother. Ocular involvement by HSV may occur in two forms : ?
A) Primary herpes : - Typically is a *unilateral* blepharoconjunctivitis which is characterized by vesicles on the skin of lids, *follicular conjunctivitis,* preauriculars adenopathy and sometimes punctate keratitis.
B) Recurrent ocular herpes : - After primary infection, recurrent disease may involve any or all layers of the cornea.
Recurrent herpatic keratitis is divided into : **?**
1) Epithelial keratitis : - Manifestations of epithelial keratitis include : -

i. *Corneal vesicles :* - Vesicles coalesce and erupt to form dendritic or geographic ulcer.
i. *Superficial punctate keratitis*
i. **Dendritic ulcer: -** It is the most common presentation and is a **typical lesion of herpes keratitis. There is an associated marked diminution of sensation.**
v. **Geographic ulcer (amoeboid ulcer)**

2) Stromal keratitis : - Stromal keratitis may be of two types : -

i. *Disciform keratitis :* - This is due to *damage to endothelial cells* as a result of hypersensitivity reaction to the HSV antigen.
i. *Diffuse stromal necrotic keratitis :* - Caused by active viral invasion and tissue destruction.

3) **Metaherpatic keratitis (Epithelial sterile trophic ulceration) : -** It is not an active disease, but is a mechanical healing problem at the site of previous herpetic ulcer.

582. Corneal complications of contact lens use ?

a) Acanthamoeba keratitis

b) Corneal infiltrate

c) Corneal vascularization

d) All of the above

Correct Answer - D

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

<u>Advantages of contact lens</u>

- Contact lens has several advantages over spectacles :-

i. *Retain binocularity in Anisometropia* owing to less magnification of size of retinal image.

i. Irregular astigmatism can be corrected.

i. No peripheral distoration as it moves with eye and there is normal field of vision.

. Not subjected to moistening.

. Several varieties of contact lens can aid in *treatment of dry eye.* Hard contact lens may stimulate reflex tearing and also prevent evaporation of tear .

i. *Cosmatically superior.*

i. Tinted contact lenses relieve photophobia in albinism.

Disadvantages of contact lens

- Complications of contact lens wearing are : *?*

i. *Intolerance :* - Some people find wearing contact lenses intolerable.

i. *Corneal complications :* - Corneal abrasion, Corneal edema, Corneal vascularization, Microbial keratitis (Pseudomonas, acanthamoeba), Sterile corneal infiltrate.

i. *Giant papillary conjunctivitis.*

v. *Hypoxia :* - Cornea is deprived of oxygen from the tear film by the presence of the contact lens. The *cornea becomes edematous and new vessels may develop in the timbal area.*
v. *Sensitivity :* - This may develop in response to the preservative (thiomersal) in the cleaning and soaking solution. This results in allergic conjunctivitis.

583. Sclera thinnest at ?

a) Limbus

b) Equator

c) Anterior to attachment of superior rectus

d) Posteiror to attachment of superior rectus

Correct Answer - D

Ans. is 'd' i.e., Posterior to attachment of superior rectus

The sclera is commonly known as *"the white of the eye".* Sclera is the tough, opaque tissue which forms the posterior five-sixth opaque part of the external fibrous tunic of eye ball (anterior one sixth is occupied by cornea). Anteriorly it is continuous with cornea and the ring where the two areas (sclera and cornea) join is called the limbus, i.e., limbus is sclerocorneal junction. Inner surface of sclera lies in contact with choroid with a potential suprachoroidal space in between. The sclera is a tough structure which protect the eyeball and maintains its shape. It also serves as an attachment for many extroocular muscles.

The thickness of the sclera varies according to location : ?

1. At the limbus, the sclera is 0·8 mm thick.
2. Anterior to the rectus muscle insertions, it is 0·6 mm thick.
3. *Posterior to the rectus muscle insertions, it is 0·3 mm thick (Thinnest portion).*
4. At the equator, it is 0·5 to 0·8 mm thick.
5. *At the posterior pole, it is greatest than 1 mm thick.*

584. True about phlyctenular conjunctivitis are all, except?

a) Endogenous allergy

b) Caused by staphylococcus

c) Type II hypersensitivity

d) Usually unilateral

Correct Answer - C

Ans. is 'c' Type II hypersensitivity

<u>Phlyctenular keratoconjunctivitis</u>

- Phlyctenular conjunctivitis is an allergic response of the conjunctival and corneal epithelium to some endogenous allergens and characterized by formation of the phlyctens. Phlyctens are *grey, yellow or pinkish white nodules* slightly raised above the surface, are seen on the bulbar conjunctiva, *generally near the limbus.* Peak age group is 3-15 years with slight female preponderance.

Etiology

- It is believed to be a delayed hypersensitivity (Type IV cell mediated) response to endogenous microbial proteins. Causative allergens are : - i) Staphylococcus proteins (most common); ii) Tuberculous proteins iii) *Proteins of Moraxella axenfeld bacillus and certain parasites.*

Symptoms

- Disease is usually *unilateral* (in contrast to vernal keratoconjunctivitis which is bilateral). There is mild irritation, discomfort and lacrimation. Itching is not prominent as seen in vernal keratoconjunctivitis.
- Phlyctens are pinkish white nodules at limbus. Phlyctens are surrounded by hyperamia (congestion) and this congestion of vessels is limited to the area around phlyctens. Phlyctens ulcerate at

apex.

- *Corneal involvement* may result in *miliary ulcer, ring ulcer, fascicular ulcer or sacrofulous ulcer.* There may be *diffuse infiltrative phlyctenular keratitis.*

Treatment

- Topical steroids are the DOC.

585. Iris bombe is seen in patients with ?

a) Segmental posterior synechiae

b) Annular osteriorsynechiae

c) Total posterior synechiae

d) None of the above

Correct Answer - B

Ans. is `b' i.e., Annular posterior synechiae

<u>Svnechiae in iridocvclitis</u>

The exudates poured out by the iris and ciliary body cover the surface of iris as thin film and spread into the pupillary area.This is called plastic iridocyclitis. Due to these exudates, iris sticks to the lens capsule and becomes fixed. Such firm adhesions of the pupillary margin to the lens is called posterior synechiae. Depending upon the portion of iris involved, posterior synechiae may be :-

i. Segmental posterior synechiae :- Adhesion of pupillary margin to the lens at some points (segmental). Dilatation of pupil with segmental posterior synechiae causes the intervening portions of the circle of the pupil to dilate Festooned appearance

i. Ring synechiae (Annular posterior synechiae):- The whole circle (380°) of the pupillary margin becomes tied down to the lens capsule. The aqueous is unable to pass into anterior chamber from the posterior chamber and collects behind the iris, which becomes bowed forwards like a sail, a condition which is called *iris bombe.* Ring synechiae is also called seclusio pupillae as there is occlusion of flow of aqueous from posterior to anterior chamber. The *anterior chamber* from the front is seen to be *funnel - shaped,* deepest in the centre and shallowest at the periphery.

i. Total posterior synechiae : - Total posterior surface of iris become

adherent to the lens capsule. This results in *deepening of anterior chamber.*

- When iris becomes adherent to cornea, it is called anterior synechiae.

586. DOC in acute anterior uveitis is ?

a) Atropine

b) Topical steroid

c) Systemic steroid

d) NSAID

Correct Answer - B
Ans. is 'b' i.e., Topical steroid
Anterior uveitis (Iridocyclitis) --> Topical corticosteroids

587. Iris pearl are seen in ?

a) Leprosy

b) Tuberculosis

c) Sarcoidosis

d) Cat Scratch disease

Correct Answer - A

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

LEPROTIC UVEITIS

- It predominantly involves anterior uvea; more commonly in lepromatous than in the tuberculoid form of disease.

Clinical types

- Lepromatous uveitis may occur as acute iritis (non-granulomatous) or chronic iritis (granulomatous).

1. *Acute iritis :* It is caused by antigen-antibody deposition and is characterised by severe exudative reaction.
2. *Chronic granulomatous iritis :* It occurs due to direct organismal invasion and is characterised by presence of small glistening'iris pearls' near the pupillary margin in a necklace form; small pearls enlarge and coalesce to form large pearls. Rarely, a nodular lepromata may be seen.

- *Treatment :* Besides usual local therapy of iridocyclitis antileprotic treatment with Dapsone 50-100 mg daily or other drugs should also be instituted.

588. Granular keratic precipitates are made of ?

a) Epitheliod cells

b) Macrophages

c) Lymphocytes

d) RBC

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

589. Drug used in refractory glaucoma ?

a) Systemic glucocorticoid

b) ACE inhibitor

c) Alpha agonist

d) Beta blocker

Correct Answer - C
Ans. is 'c' i.e., Alpha agonist
Drug of choice for initial treatment of open angle glaucoma is either an topical β-blocker or topical PG analogue (latanoprost)
It target IOT is not attained either change over to alternative drug or use both concurrently.
In refractory cases (who are not responding to (3-blockers and PG analogues), topical α-agonist (Brimozidine) or topical carbonic anhydrase inhibitor (dorazolamide) is added.
It target IOT is still not attained, laser trabeculoplasty is considered.

590. Aqueous flow is increased by ?

a) Timolol

b) Latanoprost

c) Atropine

d) Dorzolamide

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

591. Pupil in acute congestive glaucoma ?

a) Round & constricted

b) Vertically oval & semidilated

c) Round & dilated

d) Pin point

Correct Answer - B

Ans. is 'b' i.e., Vertically oval & semidilated

<u>Clinical features of acute congestive glaucoma</u>

A) Symptoms : Sudden onset of very severe pain in the eye which radiates along the branches of 5th nerve and is frequently associated with nausea, vomiting and prostrations. Patient develops rapidly progressive loss of vision, redness, photophobia, and lacrimation. Coloured halos are seen.

B) Signs :

- Lid edema
- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested).
- Cornea is oedematous and insensitive.
- Anterior chamber is very shallow & with aqueous flare
- Angle of anterior chamber is closed (on gonioscopy)
- Iris is discoloured
- Pupil is semidilated, vertically oval and fixed. It is non reactive to both light and accommodation.
- IOP is markedly raised (40-70 mmHg)
- Optic disc is oedematous & hyperemic
- Fellow eye shows shallow anterior chamber and a narrow angle.

592. Initial treatment of buphthalmos is ?

a) Laser trabeculolasty

b) Goniotomy

c) Topical pilocarpine

d) Carbonic anhydrase inhibitors

Correct Answer - B

Ans. is 'b' i.e., Goniotomy

<u>Treatment of congenital glaucoma</u>

Unlike adult glaucoma. the initial treatment for congenital glaucoma is often surgical. A *drainage angle surgery* is often recommended for congenital glaucoma.

- **Surgical procedures used are :-**

i. *Goniotomy*

i. Trabeculotomy -+ can be performed with corneal clouding

i. Trabeculcctomy

/. Combined trabeculotomy and trabeculectomy

- Medications are not very effective. However, IOP is lowered by use of hyperosmotic agents, acetazolamide and beta- blockers till surgery is taken up. Miotics are of no use.

593. Oldest lens fibres are found in ?

a) Capsule

b) Cortex

c) Cortex

d) Nucleus

Correct Answer - D

Ans. is 'd' i.e., Nucleus

Anatomy of crystalline lens

- There are three structural elements that make up lens ?
  1) Lens capsule
- A transparent membrane surrounding the lens like a pocket. It is thicker over the anterior surface than the posterior surface. It is thickest at pre- equator region and thinnest at the posterior pole. When an artificial lens replaces the natural lens in cataract surgery (IOL implantation), it is placed in this same capsule.
  2) Lens epithelium
- It is a single layer *on the anterior (front) surface of the lens. There is no epithelium on posterior surface.* The epithelial cells distribute fluid, ion and glucose through the entire lens. They also create new fibers throughout a person's life.
  3) Lens fibres
- These are long protein fibers that are closely packed and parallel. They make up most of the lens volume and are laid horizontally, front to back, and concentrically like layers of an onion.As the lens fibres are formed throughout the life, these are arranged compactly as nucleus and cortex of the lens.
  a) Nucleus : - It is the central part containing the oldest fibres. it consists of different zones :-

i. *Embryonic nucleus :-* Formed at *1-3 months of gestation,* therefore consists the *oldest primary fibres.*
i. *Fetal nucleus :-* Lies around the embryonic nucleus and is formed from *3 months of gestation till birth.*
i. *Infantile nucleus :-* Corresponding the lens *from birth to puberty* and surrounds the fetal nucleus.
*. *Adults :-* Corresponds to the lens fibres formed *after puberty to rest of the life.*

b) Cortex :- It is *the peripheral part containg the youngest fibres.*

- The ciliary zonules (Zonules of zinn or suspensory ligaments of lens) hold the lens in position and enable the ciliary muscle to act on it. These consist essentially of a series of fibres which run from the ciliary body and fuse into the outer layer of the lens capsule around the equatorial zone.

594. Surgery of choice for congenital cataract ?

a) ECCE

b) ICCE

c) Needling

d) Discission

Correct Answer - A
Ans. is 'a' i.e., ECCE
Surgery for congenital or developmental cataract

- *C*ataract surgery is the treatment of choice for congenital and developmental cataract.
- Extracapsular cataract extraction (extracapsular removal of the cataractous lens) is the surgery of choice.This is done by phacoemulsification.
- Intracapsular cataract extraction (ICCE) in children is contraindicated because of vitreous traction and loss at the wieger capsulohyaloid ligament

Method for extracapsular cataract extration are :-

1. Posterior capsulectomy and anterior vitrectomy (Procedure of choice). This can be done via limbal or pars plana approach.
2. Lens aspiration
3. Lensectony

- The traditional treatment of needling or discission of congenital cataract are obsolete now.
- After removal of cataractous lens, the resultant aphakia in children is treated by : -

1. If child is < 2 years → Contact lens
2. If child is > 2 years →Intraocular lens implantation

595. A sign of Aphakia ?

a) Shallow anterior chamber

b) White pupillary reflex

c) Absent 1st & 2nd Purkinje images

d) Iridodonesis

Correct Answer - D

Ans. is 'd' i.e., Iridodonesis

Aphakia

- Aphakia refers to *absence of crystalline lens from the eye.*
- *Most common cause of aphakia is surgical removal of cataractous* lens.
- Other causes are congenital absence of lens, traumatic absorption of lens matter and posterior dislocation of lens.
- The typical signs of aphakia are deep anterior chamber, iridodonesis (tremulousness of iris) and a dark pupillary reflex.
- Only 1st and 2nd Purkinje images are present, 3rd and 4th are absent.
- As the lens is not there, eye become *highly hypermetropic.*
- Therefore, principle of treatment is to correct the error by *convex lenses* of appropriate power.
- Intraocular lens implantation in posterior chamber is the treatment of choice.
- Other treatment modalities are *spectacles* and contact lenses.

596. Ectopia lentis is seen in all except ?

a) Marfan syndrome

b) EDS

c) Trauma

d) Osteogenesis imperfecta

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

597. Purtscher retinopathy is seen in patients with ?

a) Complication of chronic pancreatitis

b) Occlusion of anterior retinal artery

c) Head trauma

d) Diabetes mellitus

Correct Answer - C
Ans. is 'c' i.e., Head trauma
Purtscher retinopathv

- Occurrence of bilateral patches of retinal whitening and hemorrhage around the optic disc in patients who suffered massive head trauma was first described by Purtscher and is called Purtscher retinopathy.

598. Cherry red spot is seen in the following except ?

a) Hunter syndrome

b) Hallervordenspatz disease

c) Goldberg's disease

d) Multiple aromatase deficiency

Correct Answer - D
Ans. is `d' i.e., Multiple aromatase deficiency

599. All are features of optic nerve injury except ?

a) Decreased acuity

b) Decreased colour vision

c) RAPD

d) Intact contrast sensitivity

Correct Answer - D

Ans. is 'd' i.e., Intact contrast sensitivity

Signs of optic nerve damage are as follows:

- *Visual acuity* is usually reduced markedly.
- *Colour vision* is often severely impaired.
- *Pupil* shows ill-sustained constriction to light.
- Marcus Gunn pupil which indicates relative afferent pupillary defect (RAPD) is a diagnostic sign. It is detected by the swinging flash light test.
- *Visual field changes.* The most common field defect in optic neuritis is a relative central or centrocaecal scotoma.
- *Contrast sensitivity is* impaired.
- *Visually evoked response* (VER) shows reduced amplitude and delay in the transmission time.

600. Vision not affected in ?

a) Papilloedema

b) Keratitis

c) Optic neuritis

d) Retinoblastoma

Correct Answer - A

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

Visual acuity and pupillary reactions usually remain fairly normal until late stages when optic atrophy sets. Even then, there is gradually progressive painless loss of vision.

Papilloedema

The terms papilloedema and disc oedema look alike and per se mean swelling of the optic disc. Ocular features of Papilloedema:

i) *Early (incipient) papilloedema*

- *Symptoms* are usually absent and visual acvity is normal.

ii) *Established (fully developed) papilloedema*

- *Symptoms* Patient may give history of transient visual obscurations in one or both eyes, lasting a few seconds, after standing. Visual acuity is usually normal.

601. Simultaneous perception in binocular vision is ?

a) Grade I

b) Grade II

c) Grade III

d) Grade IV

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

Grades of binocular single vision

There are three grades of binocular single vision, which are best tested with the help of a synoptophore.

1. Grade-I - Simultaneous perception

- It is the power to see two dissimilar objects stimultaneously.
- It is tested by projecting two dissimilar objects (which can be joined or superimposed to form a complete picture) in front of the two eyes.
- For example, when a picture of a bird is projected onto the right eye and that of a cage onto the left eye, an individual with presence of simultaneous perception will see the bird in the cage.

2. Grade-II-Fusion

- It consists of the power to superimpose two incomplete but similar images to from one complete image.
- The ability of the subject to continue to see one complete picture when his eyes are made to converge or diverge a few degrees, gives the positive and negative fusion range, respectively.

3. Grade-III - Stereopsis

- It consists of the ability to perceive the third dimension (depth perception).
- It can be tested with stereopsis slides in synoptophore.

602. Superior oblique causes all except ?

a) Intorsion

b) Elevation

c) Depression

d) Abductio

Correct Answer - B

Ans. is b i.e., Elevation

Muscle	PrimaryAction	Secondary Action
Superior rectus	Elevation	Adduction and intorsion
Inferior rectus	Depression	Adduction and extorsion
Medial rectus	Adduction	
Lateral rectus	Abduction	
Superior oblique	Intorsion	Abduction and depression
Inferior oblique	Extorsion	Abduction and elevation

603. Earliest symptom of thyroid ophthalmopathy ?

a) Proptosis

b) Lid retraction

c) Ophthalmoplegia

d) Diplopia

Correct Answer - B

Ans. is 'b' i.e., Lid retraction

Thyroid ophthalmopathv

- Thyroid ophthalmopathy, also called *thyroid orbitopathy,* is a disease of the orbit seen in *Graves disease (thyrotoxicosis),* therefore also called Graves ophthalmopathy. However it may also occur rarely in *Euthyroid person, primary hyperthyroidism and Hashimoto's thyroiditis.* Thyroid ophthalmopathy is characterized by enlargement of ocular fat and enlargement of extraocular muscles due to deposition of mucopolysaccharides.
- Clinical features are :-
- *The most common and earliest symptom is upper eyelid retraction.*
- Exophthalmos (Proptosis) Proptosis is the second most common symptom.Thyroid ophthalmopathy is the most common cause of proptosis, whether unilateral or bilateral in adults. Proptosis may be :-

1. *Mild exophthalmos :-* In hyperthyroidis (thyrotoxicosis, Graves disease)
2. *Extreme exophthalmos :-* In hypothyroidism

- Restrictive extraocular myopathy :- Enlargement of extraocular muscle *without enlargement of tendon is the hallmark of thyroid ophthalmopathy.* This distribution of extraocular muscle swelling is

typical of thyroid ophthalmopathy. The extraocular muscles involvement in order of decreasing frequency is : Inferior rectus (most commonly involved)> Medial rectus > Superior rectus > Lateral rectus > obliques. It is worth noting that this is restrictive myopathy and the muscle becomes thickened & scarred with deviation of eye towards the direction of action of muscle and there is restriction of movement in the direction opposite to the action of the involved muscle, though the opposite muscle is normal. For example in medial rectus involvement eye may be deviated medial and abduction will be restricted though the lateral rectus is normal.

- External ophthalmoplegia :- Thyroid ophthalmopathy can cause vertical diplopia due to paralysis of vertical acting muscles like inferior oblique.

604. Distichiasis is ?

a) Abnormal inversion of eyelashes

b) Abnormal extra row of cilia

c) Abnormal eversion of eyelashes

d) Misdirected cilia

Correct Answer - B

Ans. is 'b' i.e., Abnormal extra row of eye lashes

Eyelash abnormalities are as follows:

1. *Trichiasis i.e.,* misdirected cilia rubbing the eyeball. Common causes are trachoma, blepharitis, stye and lid trauma
2. *Distichiasis i.e., an abnormal* extra row of cilia taking place of meibomian glands.
3. *Madarosis i.e.,* absence of cilia may be seen in patients with chronic blepharitis, leprosy and myxoedema.
4. *Poliosis i.e.,* greying of cilia is seen in old age and also in patients with Vogt-Koyanagi- Harada's disease.

605. Patient presents with whitish crusting at base of eyelashes with itching. What is the patient suffering from?

a) Blepharitis

b) Trichiasis

c) Districhiasis

d) Ectropion

Correct Answer - A

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

Complains of whitish deposition at the base of eye lashes with crusting suggests that the patient is suffering from infection of eyelid margin - blepharitis.

BLEPHARITIS

- It is a subacute or chronic inflammation of the lid margins. It is an extremely common disease which can be divided into following clinical types:
- Seborrhoeic or squamous blepharitis,
- Staphylococcal or ulcerative blepharitis,
- Mixed staphylococcal with seborrhoeicblepharitis, o Posterior blepharitis or meibomitis, and
- Parasitic blepharitis.

Seborrhoeic or squamous blepharitis

Etiology

- It is usually associated with seborrhoea of scalp (dandruff).
- In it, glands of Zeis secrete abnormal excessive neutral lipids which are split by *Corynebacterium* acne into irritating free fatty acids.

Symptoms

- Patients usually complain of deposition of whitish material at the lid margin associated with mild discomfort, irritation, occasional watering and a history of falling of eyelashes.

Signs

- Accumulation of white dandruff-like scales are seen on the lid margin, among the lashes.
- On removing these scales underlying surface is found to be hyperaemic (no ulcers).
- The lashes fall out easily but are usually replaced quickly without distortion.
- In long-standing cases lid margin is thickened and the sharp posterior border tends to be rounded leading to epiphora.

Treatment

- *General measures* include improvement of health and balanced diet. Associated *seborrhoea of the scalp* should be adequately treated.
- *Local measures* include removal of scales from the lid margin with the help of lukewarm solution of 3 percent soda bicarb or baby shampoo and frequent application of combined antibiotic and steroid eye ointment at the lid margin.

606. Burns involving the eyelid leads to formation of ?

a) Spastic ectropion

b) Mechanical ectropion

c) Cicatricialectropion

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Cicatricial ectropion

ECTROPION

- Out rolling or outward turning of the lid margin is called ectropion.

Types

- *Senile ectropion.* It is the commonest variety and involves only the lower lids. It occurs due to senile laxity of the tissues of the lids and loss of tone of the orbicularis muscle.
- *Cicatricial ectropion.* It occurs due to scarring of the skin and can involve both the lids. Common causes of skin scarring are: thermal burns, chemical burns, lacerating injuries and skin ulcers.
- *Paralytic ectropion.* It results due to paralysis of the seventh nerve. It mainly occurs in the lower lids. Common causes of facial nerve palsy are: Bell's palsy, head injury and infections of the middle ear.
- *Mechanical ectropion.* It occurs in conditions where either the lower lid is pulled down (as in tumours) or pushed out and down (as in proptosis and marked chemosis of the conjunctiva).
- *Spastic ectropion. It* is a rare entity, seen in children and young adults following spasm of the orbicularis, where lids are well supported by the globe.

607. Following is not a variety of entropion ?

a) Pathological

b) Spastic

c) Cicatrix

d) Involutional

Correct Answer - A
Ans. is 'a' i.e., Pathological
Entropion refers to inward rolling or rotation of the lid margins towards the globe.
1. Senile entropion
2. Spastic entropion
3. Cicatrix entropion
4. Congenital entropion

608. Stye is other name of ?

a) Chalazion

b) Hordeolum internum

c) Hordeolum externum

d) None of the above

Correct Answer - C
Ans. is 'c' i.e., Hordeolum externum

609. Schirmer's test detects abnormality of which nerve?

a) Oculomotor

b) Facial

c) Hypoglossal

d) All

Correct Answer - B
Ans. is 'b' i.e., Facial
Schirmer's test is used for the production of tear by lacrimal glands.

- Preganglion secretory fibers for lacrimal gland arise from lacrimatory nucleus and pass through facial nerve, then to its greater petrosal branch. Greater petrosal nerve unites with deep petrosal nerve to form nerve to pterygoid canal to reach pterygopalatine ganglion. Post ganglionic fibres supply lacrimal gland.
- Thus, lesion in any structure of this pathway will have positive Schirmer's test.

610. Not true about retinoblastoma ?

a) Bilateral in 20-30%

b) Affects age group 1-5 years

c) More common in males

d) Leukocoria is earliest symptom

Correct Answer - C
Ans. is 'c' More common in males
Retinoblastoma is the most common intraocular tumor in children. The tumor is confined to *infancy and very young children (1-2 years).* There is *no sex predisposition.* Retinoblastoma is unilateral in 70-75% of cases and bilateral in 25-30% of cases.

611. Amaurotic cat's eye reflex is a presenting feature of ?

a) Retinoblastoma

b) Congenital cataract

c) Endophthalmitis

d) Coat's disease

Correct Answer - A
Ans. is 'a' i.e., Retinoblastoma
Leukocoria or amauratic cat's eye reflexthis is the most common manifestation of retinoblastoma. The leukocoria or the white glow in the pupil is caused by reflection of light from the white intraocular tumor
Note- Leukocoria is seen in all the given options. But, term `*amauratic cat eve reflex* is usually used for retinoblastoma.
Retinoblastoma is the most important cause of leukocoria (white pupillary reflex). Other causes of leukocoria are :-

Conditions causing leukocoria (Pseudoglioma)

- *Hereditary conditions :-* Norrie's disease, congenital retinoschisis, Incontinetia pigmenti, dominant exudative vitreoretinopathy.
- *Developmental :-* Persistent hyperplastic primary vitreous (PHPV), congenital cataract, cloboma, retinal dysplasia, congenital retinal fold, myelinated nerve fibres, morning glory syndrome, congenital corneal opacity.
- *Inflammatory :-* Ocular toxocariasis, congenital toxoplasmosis, congenital CMV retinitis, HSV retinitis, Peripheral uveoretinitis, endophthalmitis, orbital cellulitis.
- *Tumors :-* Retinal astrocytic hamartoma, Medulloepithelioma, Glioneuroma, Choroidal hemangioma, Leukemia. *Miscellaneous :-*

Coat's disease, Retinopathy of prematurity (Retrolental fibroplasia), Rheugmatogenous RD, Vitreous hemorrhage, perforating ocular injury.

612. Patient of exudative retinopathy of coats presents with leukocoria, needs to be differentiated from ?

a) Retinoblstoma

b) Retinitis pigmentosa

c) Retinal detachment

d) Congenital cataract

Correct Answer - A

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

EXUDATIVE RETINOPATHY OF COATS

- Coats' disease is a severe form of retinal telengiectasia (idiopathic congenital vascular malformation), which typically affects one eye of boys in their first decade of life.
- In early stages it is characterised by large areas of intra and subretinal yellowish exudates and haemorrhages associated with overlying dilated and tortuous retinal blood vessels and a number of small aneurysms near the posterior pole and around the disc.
- It may present with visual loss, strabismus or leukocoria (whitish pupillary reflex) and thus needs to be differentiated from retinoblastoma. The condition usually progresses to produce exudative retinal detachment and a retrolental mass.
- In late stages complicated cataract, uveitis and secondary glaucoma occur, which eventually end in phthisis bulbi.

Treatment

- Photocoagulation or cryotherapy may check progression of the disease if applied in the early stage. However, once the retina is detached the treatment becomes increasingly difficult and success

rate declines to 33 percent.

613. Which of the following is an ocular emergency ?

a) CRAO

b) Optic neuritis

c) Acute congestive glaucoma

d) All of the above

Correct Answer - D

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

Ocular emergencies include those conditions that result in acute, severe pain in association with sudden vision loss, or that may lead to vision loss if left untreated; and traumatic conditions that affect globe or adnexa.

Comon ophthalmic emergencies are :-

i. *Acute congestive glaucoma*
i. Ruptured globe
i. Ulcerative or traumatic corneal diseases
*. *Optic neuritis*
*. Hyphema
i. *Endophthalmitis*
i. Acute blindness
i. Orbital cellulitis
:. Eyelid or conjunctival laceration
:. *Central retinal arterial occlusion (CRAG)*
i. Anterior lens subluxation
i. Retinal detachment

614. Fried Egg Colonies are produced by?

a) Chlamydia

b) Mycoplasma

c) Niesseria

d) Diphtheria

Correct Answer - B
(67) Mycoplasma
REF: Jawetz 24th edition Section III. Bacteriology Chapter 26
Mycoplasma Cultures:
1. The material is inoculated onto special solid media and incubated for 3-10 days at 37°C with 5% CO_2 (under microaerophilic conditions), or into special broth and incubated aerobically. One or two transfers of media may be necessary before growth appears that is suitable for microscopic examination by staining or immunofluorescence. Colonies may have a "Fried Egg" appearance on agar.

615. Ring scotoma is seen in

a) High myopia

b) Pseudophakia

c) Hypermetropia

d) Astigmatism

Correct Answer - A
Ans. is 'a' i.e., High myopia
Scotoma is a defect in the visular field and corresponds to the degenerated zones of retina.
Annular or ring-shaped scotomais a typical feature which corresponds to the degenerated equatorial zone of retina.
Ring scotoma is seen in *retinitis pigmentosa, high myopia, POAG*$_S$ aphakic spectacle correction and after panretinal photocoagulation.

616. Most common cause of cortical blindness ?

a) Unilateral occipital lobe infarction

b) Bilateral temporal lobe infartcion

c) Bilateral occipital lobe infarction

d) Unilateral temporal lobe infarction

Correct Answer - C

Ans. is 'c' i.e., Bilateral occipital lobe infarction

CORTICAL BLINDNESS

- Cortical blindness (visual cortex disease) is produced by bilateral occipital lobe lesions. Unilateral occipital lobe lesions typically produce contralateral macular sparing congruous homonymous hemianopia.
- *Causes* of cortical blindness include:

1. *Vascular lesions producing bilateral occipital infarction are the commonest cause of cortical blindness (e.g., embolisation of posterior cerebral arteries).*
2. *Head injury* involving bilateral occipital lobes is the second common cause.
3. *Tumours,* primary (e.g., falcotentorial meningiomas, bilateral gliomas) or metastatic are rare causes.
4. *Other rare causes* of cortical blindness are migraine, hypoxic encephalopathy, Schilder's disease and other leukodystrophies.

617. Which of the following is/ are the side effect/ s of using argon laser ?

a) Hypopigmentation

b) Crusting

c) Keloid formation

d) All the above

Correct Answer - D
Ans. is 'd' i.e., All the above
<u>Argon Laser</u>

- Wavelength 488 - 514 nm
- Penetration depth of 1 mm, which can be increased by cooling
- Side effects: crusting and possible blistering of skin, irreversible hypopigmentation, transient hyperpigmentation, punctate atrophic or hypertrophic scars, keloid formation.

618. A patient presents with freckling in axilla and inguinal area since childhood; which of the following is not an ophthalmological examination finding in such a patient?

a) Optic nerve glioma

b) Lisch nodules

c) Choroidal nevi

d) Aniridia

Correct Answer - D
Ans. is 'd i.e., Aniridia
Axillary and inguinal freckling is a feature of neurofibromatosis type - 1.

619. Triad of Balint's syndrome includes all of the following, except -

a) Opsoclonus

b) Optic ataxia

c) Simultagnosia

d) Ocular apraxia

Correct Answer - A

Answer- A. Opsoclonus

- Balint's syndrome is the classical human dorsal pathway syndrome.
- Triad of Balint's syndrome includa simultagnosia, optic ataxia and aptaxia of gae (ocular apraxia).

620. Lateral Medullary Syndrome involves all of the following cranial nerves, Except:

a) Vth CN

b) IXth CN

c) Xth CN

d) XII CN

Correct Answer - D
Answer is D (XII CN):
Cranial Nerve XII is involved in the Medial medullary syndrome and not in Lateral medullary syndrome.
Lateral Medullary Syndrome involves the spinal nucleus of the trigeminal nerve and its tract (CN V); Vestibular nuclei (CN VIII); Nucleus Ambiguous (IX, X, XI) and fibers of the cranial nerves IX and X.
Cranial Nerves involved in Lateral Mediallary syndrome: V, VIII, IX, X, XI

621. Which of the following is used in management of diabetes?

a) Bromocriptine

b) Octreotide

c) Prednisolone

d) Pegvisomant

Correct Answer - A

Answer- A. Bromocriptine

- Bromocriptine is recently included as antidiabetic.

622. Dilutional hyponatremia is seen in ?

a) Addison's disease

b) Vincristine

c) Diuretic therapy

d) Craniphyrangioma

Correct Answer - B
Answer- B. Vincristine

- Acute kidney injury (AKI) (ARF)
- Cirrhosis
- Nephrotic syndrome
- Cardiac failure
- Anti cancer drugs

623. Osmotic demyelination syndrome develops due to rapid correction of hyponatremia at a level exceeding?

a) 0.5 mEq/hr

b) 2 mEq/hr

c) 5 mEq/hr

d) 10 mEq/hr

Correct Answer - A

Answer- A. 0.5 mEq/hr

- In patients who are treated to increase the serum sodium, the goal of initial therapy is to raise the serum sodium concentration by 4 to 6 meq/L in a 24-hour period.

624. Hypokalemia causes death due to -

a) Respiratory insufficiency

b) Torsades de pointes

c) Systolic arrest

d) Diastolic arrest

Correct Answer - A:B
Answer- A & B Respiratory insufficiency and Torsades de pointes
Death in hypokalemia may be due to -
1. Respiratory failure due to respiratory muscle weakness
2. Cardiac arrhythmia, especially torsades-de-pointes/QT prolongation

625. **Filgrastim is used in treatment of:**

a) Anemia

b) Neutropenia

c) Malaria

d) Filarial

Correct Answer - B

Filgrastim is a recombinant human granulocyte colony stimulating factor (G-CSF) which is a 175 - aminoacid glyco-protein.

It differs from the natural granulocyte stimulating factor due to its lack in glycosylation and the presence of an extra N-terminal methionine. It has proved to be effective in the treatment of severe neutropenia.

Ref: Goodman and Gilman's The Pharmacological Basis of Therapeutics, 11th Edition, Pages 1429-32; Immunopharmacology By Manzoor M. Khan, Pages 49-50

626. Appearance of spleen with deposits of Amyloid within the white pulp of spleen is known as -

a) Sago spleen

b) Lardaceous spleen

c) Nutmeg spleen

d) Zahn spleen

Correct Answer - A

Answer- A. Sago spleen

- Altpeorance of Spleen with deposits of Amyloid in the stroma of the red pulp is known as lardaceous spleen and within the stroma of the white pulp is known as sago spleen.
- Cut surface looka like it is impregnated with grains of sand (nodules resembling tapioca like granules) i.e., sago grains and hence called Sago spleen.

627. Lardaceous spleen is a feature of:
March 2010

a) Thalassemia

b) Amyloidosis

c) Sickle cell anemia

d) Malaria

Correct Answer - B

Ans. B: Amyloidosis

Spleen is more frequently the seat of amyloidos is than any other organ, and that it appears in a majority of cases to be the organ primarily affected.

There are two forms of amyloid disease, called respectively the Sago form and the diffuse form or waxy spleen, to which a third or combined form may be added.

In the first the Malpighian bodies are mainly engaged; in the second the pulp.

On section of the spleen of sago type, instead of the normal small Malpighian bodies, transparent glancing areas which have been very aptly compared to grains of boiled sago. These are dotted over the surface in great profusion. On applying a solution of iodine the affected areas stand out as brown spots, which become of a deeper colour on adding dilute sulphuric acid.

The diffuse amyloid spleen presents much greater enlargement than the sago form. It is in the highest degree hard, heavy, and the edges rounded.

On section The tissue seems homogeneous and inelastic, and of a dark translucent appearance, which has been compared to that of wax or bacon, hence the names Waxy and **Lardaceous spleen.**

"Kidney is the MC involved organ in amyloidosis".

628. Best investigation for diagnosing amyloidosis *?*

a) Rectal biopsy

b) Colonoscopy

c) CT scan

d) Upper GI endoscopy

Correct Answer - A
Ans. is 'a' i.e., Rectal biopsy
Diagnosis of amyloidosis

- *The most definitive investigation for amyloidosis is biopsy.* The diagnosis of amyloidosis is made by detecting the characteristic amyloid protein in a biopsy specimen of involved tissue.
o For many years rectal biopsy was the first procedure of choice. However, *the capillaries in the subcutaneous fat are aften involved in patients with systemic amyloidosis and can often provide sufficient tissues for the diagnosis of amyloidosis.*
o Therefore, a needle aspiration biopsy of fat just under the skin of the belly (fat pad aspiration) offers a simple and less invasive method to diagnose systemic amyloidosis and biopsy of the organ with the most severe clinical involvement is often unnecessary.
o *When the subcutaneous fat aspiration biopsy does not provide information to reach a final diagnosis, biopsy samples can be collected from other organs.*
o The best sites of biopsy are abdominal fat pad (90% sensitivity) and rectal mucosa (70-80% sensitivity). Other sites are salivary glands, gingiva, skin, tongue, bone marrow, stomach.

629. CLO test is used for -

a) H. pylori

b) Brucella

c) Gonorrhoea

d) EBOLA

Correct Answer - A
Answer- A. H. pylori

- Rapid urease test, also known as the CLO test (Campylobacter-like organism test), is a rapid diagnostic test for diagnosis of Helicobacter pylori.

630. Primary complex in Liver in Congenital tuberculosis occurs through

a) Lymphatic Spread

b) Haematogenous Spread

c) Aspiration of Infected Amniotic fluid

d) Ingestion of Infected Amniotic Fluid

Correct Answer - B

Answer is B (Haematogenous Spread):

Primary Complex in Liver in cases of Congenital Tuberculosis occurs when infection enters the fetus through the umbilical veins (Trans-placental; Haematogenous Infection).

- *Liver is the most common Primary site of infection in* Congenital Tuberculosis caused by *Trans placental* or Haematogenous route
- *Lung is the most common Primary site of infection* in Congenital Tuberculosis caused by *aspiration of infected amniotic fluid*
- *Gastrointestinal Tract is the most common Primary site of infection* in Congenital Tuberculosis caused by *ingestion of infected amniotic fluid*

Since Lungs are eventually involved in most cases of congenital tuberculosis where Liver is the primary site of infection, Lungs are overall the most commonly involved sites in Congenital Tuberculosis

631. All of the following statements about Miliary Tuberculosis are true Except:

a) May occur following primary infection

b) May occur following secondary reactivation

c) Sputum microscopy is usually negative

d) Montoux is always positive

Correct Answer - D
Answer is D (Monotoux *is* always positive):
120. Montoux test is not always positive in cases of Miliary Tuberculosis.
It may be negative /non reactive as a result of anergy.
Miliary Tuberculosis max' occur following primary infection and secondary reactivation
Miliary tuberculosis is due to hematogenous dissemination of tubercle bacilli.
'Classically miliary tuberculosis develops following hematogenous dissemination at the time ofprimary infection' -Harrisons 1 lth/629
In adults it/diary tuberculosis may be due to reactivation of old disseminated foci (secondary reactivation)' - *Harrisons 17th/1013*
Sputum microscopy is usually negative (Harrisons 17th/1013)
'Sputum smear microscopy is negative in 80% of cases' – Harrison 17th/1013
Montoux test is negative in 20-30% of patients with Miliary Tuberculosis
`*The Tuberculn skin Test (montoux) may be non reactive due to anergy' -Nelson 5th/567*
`*Tubercular anergy is common in Miliary Tuberculosis and a negative skin test should not be a deterrant to the consideration of*

this diagnosis' - Harrison 11th/629
'Upto 30% of children have a negative tuberculin skin test' - 'Tuberculosis : Current concepts and Treatment' 2nd/201
Liver, kidney and spleen are common sites of involvement along with other sites
Almost every organ in the body may be involved. Mihaly tuberculosis is most prominent in Liver, spleen, kidney and other organs including bone marrow, adrenals, meninges, fallopian tubes and epididymis - Robbins 7th/386

632. **Intravenous immunoglobulin therapy is effective in some patients with which of the conditions?**

a) Pure red cell aplasia

b) Myelodysplasia

c) PNH

d) G6PD deficiency

Correct Answer - A

Red cell aplasia is treated with combination of erythrocyte transfusions and iron chelation. For persistent B19 parvovirus infection, almost all patients respond to intravenous immunoglobulin therapy.

Ref: Harrisons Principles of Internal Medicine, 18th Edition, Page 895

633. All of the following are true about Weber's syndrome. Except

a) Ipsilateral occulomotor nerve palsy

b) Diplopia

c) Contralateral hemiplagia

d) Ipsilateral facial nerve palsy

Correct Answer - D
Answer is D (Ipsilateral facial nerve palsy):
Weber's syndrome is `midbrain' syndrome charachterized by Ipsilateral Occulomotor Nerve Palsy (Opthalmoplegia / Diplopia) and Contralateral Hemiplegia.

Midbrain Syndromes

	Symptoms and Signs	**Structures involved**
Weber's syndrome	• *Ipsilateral oculomotor nerve palsy*	• *Oculomotor nerve*
	• *Contralateral hemiplegia including face*	• *Corticospinal and corticobulbar tracts*
Benedikt's syndrome	• Ipsilateral oculomotor nerve palsy	• Oculomotor nerve
	• Contralateral hemiparesis including face	• Corticospinal and corticobulbar tracts
	• Contralateral intention tremor	• Red nucleus
Claude's syndrome	• Ipsilateral oculomotor nerve palsy	• Oculomotor nerve
	• Contralateral	• Red nucleus and

	hemiataxia and hemiasynergia	brachium conjunctivum
Parinaud's syndrome	• Bilateral vertical palsy	• Superior colliculus
	• Bilateral paralysis of convergence	• Superior colliculus

634. Inclusion bodies seen in progressive myoclonic epilepsy -

a) Buschino bodies

b) Lewy bodies

c) Hirano bodies

d) Lafora bodies

Correct Answer - D
Answer- D. Lafora bodies

- Lafora bodies- progressive myoclonic epilepsy
- Hirano bodies- Alzheimer disease
- Buschino bodies- lateral sclerosis
- Lewy bodies- Parkinson's disease and Lewy body disease

635. All are true about Hashimoto encephalopathy except -

a) Myoclonus

b) Seizures

c) Steroid responsive encephalopathy

d) EEG is normal

Correct Answer - D
Answer- D. EEG is normal
Electroencephalography

- Nonspecific electroencephalographic (EEG) abnormalities are seen in 90 to 98 percent of patients, usually demonstrating nonspecific slowing of background activity.
- Hashimoto's encephalopathy is treated with steroids

636. DOC for Hashimoto encephalopathy -

a) Steroids

b) Prophythiouracil

c) I-131

d) Liothyronine infusion

Correct Answer - A

Answer- A. Steroids

- Hashimoto encephalopathy (HE) is usually treated with corticosteroids and treatment of a dysthyroid state.

637. Chances of blindness in diabetic patient as compared to non-diabetic patient is ?

a) 5 times

b) 10 times

c) 15 times

d) 25 times

Correct Answer - D

Answer- D. 25 times

- The gravity of this problem is highlighted by the finding that individual with DM are 25 times more likely to become legally blind than individuals without DM.

638. Most serious side effect with sodium polystyrene sulfonate -

a) Intestinal necrosis

b) Rebound hyperkalemia

c) Cardiac arrest

d) Respiratory arrest

Correct Answer - A

Answer- A. Intestinal necrosis

- Sodium polystyrene sulfunate (SPS) exchange Na+ for K+ in the gastrointestinal tract and increases the fecal excretion of K+.

639. The Maximum concentration of potassium delivered via central vein is?

a) 20 mmol/L

b) 40 mmol/L

c) 60 mmol/L

d) 100 mmol/L

Correct Answer - C

Answer- C. 60 mmol/L

- Maximum concentration possible delivered via central vein = 60 mmo/l

640. Best management after human bite -

a) Ampicillin plus sulbactam

b) Clindamycin plus TMP-SMX

c) Fibroquinolone

d) Doxycycline

Correct Answer - A
Answer- A. Ampicillin plus sulbactam
1. Ampicillin/sulbactam
2. Imipenem
3. Cefoxitin in penicillin allergics

641. All of the following statements about Bartter Syndrome and Gitelman's Syndrome are true, except:

a) Autosomal Recessive Inheritance

b) Bartter Syndrome Presents earlier in life than Gitelman's Syndrome

c) Genetic defect in Bartter Syndrome involves the transport proteins in the distal tubule

d) Hypercalciuria is more common in Bartter Syndrome

Correct Answer - C

Answer is C (Genetic defect in Bartter Syndrome involves the transport proteins in the distal tubule)

Genetic defect in Bartter Syndrome is located in the thick ascending limb of the loop of Henle.

Features	Bartter Syndrome (Mimics Loop Diuretics)	Gitelman's Syndrome (Mimics Thiazide Diuretics)
Inheritance	• Autosomal recessive disorder.	• Autosomal recessive disorder
Pathophysiology	• Genetic defect in the thick ascending limb of the Loop of Henle • *Defects in Na-K-2C/*	• Genetic defect in the distal tubul • *Defect in Na-C cotransporter in the distal* tubule

	co[L]transporter, K or Cl channels result in lack of concentrating ability	
Age of Presentation	• *Early in lift.*	• *Late childhood or early adulthood.*
Clinical presentation:	• *No Hypertension* • *Polyuria and polydipsia common* • *Neuromuscular symptoms are uncommon or mild* *Often presents with sensorineural deafness, triangular facies with drooping mouth, large* eves and pinnae, and renal failure.	• *No Hypertension (Can see lower than* average blood pressure due to salt wasting). • Polyuria and nocturia in 50-80%. • *Often present with neuromuscular symptoms* such as muscle cramping and spasms, significant fatigue
Lab data:	• *Chloride resistant metabolic alkalosis* • *Hvpokalemia* • Normal serum magnesium (may	• *Chloride-resistant metabolic alkalosis* • *Hypokalemia.* •

	be low). • Increased Urinary Calcium Excretion *(Hypercakiuric so at risk for kidney stones or* nephrocalcinosis)	Hypomagnesemi • Decreased Urinary calcium excretion • Ibpocalciuric so no increased risk of kidney stones or nephrocalcinosis)
Renal PGE2 production	• Increased	• *Normal*

642. MDR TB is defined as?

a) Resistance to INH and Ethambutol

b) Resistance to Rifampicin and Ethambutol

c) Resistance to Pyrazinamide and Rifampicin

d) Resistance to INH and Rifampicin

Correct Answer - D

Ans. is 'd' i.e., Resistance to INH and Rifampicin

Treatment of multidrug resistance (MDR) TB

- MDR-TB is defined as resistance to at least both INH and rifampicin. Previously it was classified as Category IV under DOTS (DOTS-PLUS).
- The treatment is given in two phases, the intestive phase (IP) and the continuation phase (CP). *The total duration of treatment for regimen for MDR-TB is 24-27 months,* depending on the IP duration.

o Treatment regimen comprises :-

i. Intensive phase (6-9 months) : *Six drugs :* Kanamycin (Km), levofloxacin (Lvx), ethionamide (Eto), pyrazinamide (Z), ethambutol (E), and cycloserine (Cs).

i. Continuation phase (18 months) : *Four drugs :* Levofloxaxcin, ethionamide, ethambutol and cycloserine.

i. Total duration of treatment is 24-27 months.

Treatment of extensive drug resistance (XDR) TB

- XDR-TB is defined as *resistance to any fluoroquinolone* and *at least one of the following three second-line drugs (capreomycin, kanamycin, amikacin),* in addition to multidrug resistance.
- The Regimen for XDR-TB would be of 24-30 months duration, with 6-12 months Intensive Phase (IP) and 18 months Continuation Phase (CP).

Regimen is :-

i. Intensive phase (6-12 months) : *Seven drugs :* Capreomycin, PAS, moxifloxacin, high dose INH, clofazimine, Linezolid, amoxyclay.
i. Continuation phase (18 months) : Sir *drugs :* PAS, moxifloxacin, high dose NH, clofazimine, linezolid, amoxyclay.

643. Normal Pulmonary Capillary Wedge Pressure (PCWP) is:

a) 6-12 mm Hg

b) 10-14 mm Hg

c) 12-18 mm Hg

d) 18-25 mm Hg

Correct Answer - A
Answer is A **(6-12 mm Hg):**
Capillary Wedge Pressure is between 6 to 12 mmHg.
Pulmonary capillary wedge pressure (PCWP) (Normal = 6 to 12 mm Hg)

PCWP is recorded when the PA catheter balloon is inflated and wedged in a branch of the pulmonary artery. PCWP reflects left atrial pressure
When there is no obstruction between the left atrium and ventricle PCWP =left atrial pressure = left ventricular end-diastolic pressure)

644. Hydrostatic Pulmonary edema with fluid in alveoli is usually seen when PCWP is:

a) >6 mm Hg

b) >10 rnm Hg

c) >15 mm Hg

d) >25 mm Hg

Correct Answer - D
Answer *is* D (>25mm Hg):
Alveolar Pulmonary edema from elevated hydrostatic pressure (Cardiogenic) is typically associated with PCWP >25 ntm Hg. Elevated PCWP but with Pressure <25mm Hg is usually associated with interstitial pulmonary edema and not true alveolar pulmonary edema.
Hydrostatic pulmonary edema is also known as cardiogenic pulmonary edema (since it typically arises from left heart failure). The inefficient left ventricle causes blood to back up in the *pulmonary circulation, *increasing hydrostatic pressure* in the pulmonary capillaries (Increased PCWP).
High capillary pressure progressively forces fluid first into the interstitium (Interstitial Pulmonary Edema) and then into the alveoli (Alveolar Pulmonary Edema).
Three stages of pulmonary edema can be distinguished based on the degree of fluid accumulation

- **Stage 1** is characterized by excess fluid that can still be cleared by lymphatic drainage.
- **Stage 2** is characterized by the presence of interstitial edema.
- **Stage 3** is characterized by alveolar pulmonary edema (fluid and proteins enter the alveolar space)

PCWP	Stage	Interpretation in relation to Hydrostatic Pulmonary Edema
6-12 mm Hg (Normal)	Normal	No Pulmonary Edema
12-18mm Hg (Mild Increase)	Stage I	Usually not associated with pulmonary edema Excess fluid can still be cleared by lymphatic drainage No Physical or X-ray Findings are usually evident
18 – 25 mm Hg (Moderate Increase)	Stage 2	Characterized by the presence of interstitial edema Some physical findings including some fine crackling breath sounds may be evident X-ray evidences of pulmonary edema in the form of engorged pulmonary vessels and appearance of infiltrates may be seen
>25 mm Hg (Severe Increase)	Stage 3	Characterized by alveolar pulmonary edema (fluid and proteins enter the alveolar space) Physical findings are prominent and include clinically significant hypoxemia, tachypnea, respiratory distress, diffuse crackles, and wheezing breath sounds Obvious x-ray evidence of pulmonary edema (greatly increased infiltrates and vascular engorgement)

645. All of the following neurotransmitter deficiencies are observed in Alzheimer's disease, Except

a) Acetylcholine

b) Serotonine

c) Noradrenaline

d) Dopamine

Correct Answer - D
Answer is D (Dopamine):
Dopamine deficiency is not a feature of Alzheimer's disease.

646. Common neurological manifestations of thyrotoxicosis include all except -

a) Hyper reflexia

b) Muscle wasting

c) Chorea

d) Proximal myopathy without fasciculations

Correct Answer - C
Answer- C. Chorea
Hyperreflexia
- Muscle weakness
Muscle wasting proximal myopathy without fasciculation
- Chorea is rare

647. Decreased dietary intake of potassium is incriminated in leading to all except?

a) Hypertension

b) Stroke

c) CHF

d) Diabetes mellitus

Correct Answer - D

Answer- D. Diabetes mellitus

- Reduced dietary K+ are implicated in the pathophysiology and progression of hypertension, heartfailure, and stroke.

648. All the following are true about bronchopulmonary aspergillosis *except:*

a) Central bronchiectasis

b) Pleural effusion

c) Asthma

d) Eosinophilia

Correct Answer - B

Answer is B (Pleural effusion):

Pleural effusion is not seen as part of allergic bronchopulmonary Aspergillosis

- ABPA occurs in patients with preexisting asthma and cystic fibrosis. – Harrisons
- ABPA causes intermittent episodes of wheezing, pulmonary infiltrates, sputum and *blood eosinophilia,* low grade fever and brownish or greenish flecks in the sputum.
- Patients with repeated exacerbations develop *central bronchiectasis* and progressive loss of pulmonary function.

649. A 33 year old woman has experienced episodes of fatigue, pleural effusion, pericardial effusion and carpal tunnel syndrome and macrocytic anemia. Best test for diagnosis shall be -

a) Anti-beta 2 phospholipid antibodies

b) Anti-smith antibody

c) Antinulear antibody

d) Assay for thyroid hormones

Correct Answer - D

ANSWER- D. Assay for thyroid hormones

- Carpel tunnel syndrome is a common complication of hypothyroidism and is often reversible with thyroid hormone therapy.
- Normally hypothyroidism is associated with normochromic anemia but may sometimes also cause macrocytic anemia.

650. True about subcutaneous nodule in Rheumatic fever

a) Non tender

b) Most common manifestation

c) Present in extensor surfaces

d) a and c

Correct Answer - D
Answer is A & C (Non tender; Present on extensor surfaces)
Subcutaneosis nodules in Rheumatic fever are non tender and commonly located on extensor surfaces These are a rare manifestation of Rheumatic fever and are commonly associated with carditis

Features of Subcutaneous nodules in Rheumatic Fever

- Rare manifestation (. I% of patients with acute Rheumatic fever)
- Delayed manifestation (appearing 2-3 weeks after onset of disease)
- *Located commonly along the extensor surfaces of tendons near bony prominences (particularly hands, feet, elbows, occiput / occasionally vertebra)*
- *Painless (Non tender)*
- *Mobile*
- *Small in size (0.5 – 2cm)*
- *Commonly assoicated with carditis*
- *Nodules last for just a few days to upto 3 weeks*

651. Which of the following metal ions is associated with secondary Parkinsonism -

a) Mangnese (Mn)

b) Magnesium (Mg)

c) Selenium (Se)

d) Molybdenum (Mo)

Correct Answer - A

Answer- A. Mangnese (Mn)

- Manganese ion exposure is implicated in free radical damage of the basal ganglia causing Parkinsonism.

652. Wheel chair sign of Quinn is used as a typical red flag sign in -

a) Idiopathic parkinsonism

b) Duchenne muscular dystrophy

c) Becker's dystrophy

d) Thomson disease

Correct Answer - A

Answer- A. Idiopathic parkinsonism

- Wheelchair Sign is a Red Flag Sign described by Ouinn for the diagnosis of idiopathic Parkinsonism.
- The so called wheel chair sign of permanent dependency is more commonly associated with causes of parkinsonism other than Parkinson's disease

653. A female patient has TSH elevated above normal and subnormal free T4. What is the likely diagnosis?

a) Primary hypothyroidism

b) Secondary hypothyroidism

c) Hyperthyroidism

d) Subclinical hypothyroidism

Correct Answer - A
Answer- A. Primary hypothyroidism
Elevated TSH with decreased T3/74 in the patient is suggestive of primary hypothyroidism"

654. Which is not seen in Allgrove syndrome -

a) ACTH excess leading to Cushing syndrome

b) Achalasia

c) Alacrimia

d) Hyperpigmetation

Correct Answer - A

Answer- A. ACTH excess leading to Cushing syndrome

- ACTH resistant adrenal deficiency
- Achalasia of the cardia
- Alacrimia
- Autosomal recessive disorder
- Neurological features appear at later age and autonomic manifustations are the most common neurological disorder.
- Polyneuropathies, Amyotrophy and optic atrophy are other disorders
- Alacrimia is the earliest and most consistent symptom and the achalasia and adrenal insfficiency develop over the first two decades.

655. Hyperkalemia is caused by ?

a) Amphotiricin B

b) Beta agonists

c) Gentamycin

d) Succinylcholine

Correct Answer - D
Ans. is 'd' i.e., Succinylcholine
Drugs causing *hypokalemia*

- β *agonist*
- *Licorice*
- *Penicillin derivatives*
- *Amphotericin B*
- *Theophylline*
- *Steroids*
- α *Blockers*
- *Toluene abuse*
- *Gentamicin*
- Insulin
- *Vitamin B_{12}*
- Diuretics
- *Carbenoxalone*

Important drugs causing hyperkalemia

- *ACE inhibitors*
- *Trimethoprim*
- *Succinylcholine*
- *K+ sparing diuretic*
- *Hep.*
- *NSAIDS*

- *Pentamidine*
- *Lithium.*
- *Cyclosporine*

656. TTKG in hypokalemia is -

a) < 3-4

b) > 6-7

c) > 9-10

d) > 10-15

Correct Answer - A

Answer- A. < 3-4

- A normal TTK in normal subjects on normal diet is 8-9
- Without other disease, hypokalemia should produce a TTKG <3

657. Auto-splenectomy is associated with -

a) Systemic lupus erythematosus

b) Trauma

c) Sarcoidosis

d) ITP

Correct Answer - A

Answer- A. Systemic lupus erythematosus

- SLE patients with thrombocytosis anil antiphospholipid sytdrome are at risk of developing autosplenectomy.

658. Healing with calcification is a feature of -

a) Cryptococcosis

b) Mucomycosis

c) Aspergillosis

d) Histoplasmosis

Correct Answer - D

Answer- D. Histoplasmosis

- In the immunocompetent host, macrophages, lymphocytes, and epithelial cells eventually organize and form granulomas that contain the histoplasma organisms.

659. The absolute indications for dialysis include the following except -

a) Persistent Hyperkalaemia

b) Congestive cardiac failure

c) Pulmonary edema

d) Hyperphosphatemia

Correct Answer - D

Answer- D. Hyperphosphatemia

- Pericarditis or pleuritis (urgent indication).
- Progressive uremic encephalopathy or neuropathy
- Persistent metabolic disturbances
- Fluid overload refractory to diuretics.
- Hypertension poorly responsive to antihypertensive medications.
- Persistent nausea and vomiting.

660. The Epworth scale is used for assessing -

a) Body mass index

b) Vital capacity in post-operative patients

c) Sleep apnea

d) Risk of embolism in perioperative patient

Correct Answer - C
Answer- C. Sleep apnea
The Epworth Sleepiness Scale-

- Obstructive sleep apnea
- Narcolepsy
- Idiopathic hypersomnia

661. Butterfly rash is associated with:
September 2006, September 2012

a) DLE

b) SLE

c) Rheumatoid arthritis

d) Reiter's syndrome

Correct Answer - B
Ans. B: SLE
Cutaneous LE may be part of an uncommon disease called systemic lupus erythematosus (SLE). Only a few people with cutaneous LE also have SLE.
The most common presentation is with a malar eruption or 'butterfly rash' (red patches across the cheeks).
Other skin changes in SLE are photosensitivity (a rash on all sun exposed skin), mouth ulcers, urticaria (hives) and diffuse hair thinning.
Rarely, it may cause blisters (bullous LE).
SLE may also affect joints, kidneys, lungs, heart, liver, brain, blood vessels (vasculitis) and blood cells. It may be accompanied by antiphospholipid syndrome.

662. All the following are features of Pseudotumor cerebri *except:*

a) Increased intracranial tension

b) Convulsions

c) Papilledema

d) Normal CT scan

Correct Answer - B
Answer is B (Convulsions):
There are no focal neurological signs in pseudotuntor cerebri. Therefore, Pseudotumor Cerebri does not present with convulsions. Seizures are produced due to focal neurological electrical abnormalities that may or may not involve the whole brain. In any case, these always start in a localized area of the brain.

663. Neurodegeneration with iron accumulation in basal ganglia is typically seen in -

a) Hallervorden spatz disease

b) Hemochromatosis

c) Wilson's disease

d) Cystic fibrosis

Correct Answer - A

Answer- A. Hallervorden spatz disease

- Pantothenate kinase-associated neurodegeneration (PKAN), formerly known as Hallemorden-Spatz disease, is an autosomal recessive disorder; most cases are caused by mutations in the gene encoding pantothenate kinase 2 (PANK2).

664. Prader willi syndrome, chromosomal defect?

a) Chromosome 15

b) Chromosome 5

c) Chromosome 10

d) Chromosome 21

Correct Answer - A
Ans. is 'a' i.e., Chromosome 15

- Prader-Willi syndrome is a complex genetic condition that affects many parts of the body.
- In infancy, this condition is characterized by weak muscle tone (hypotonia), feeding difficulties, poor growth, and delayed development. Beginning in childhood, affected individuals develop an insatiable appetite, which leads to chronic overeating (hyperphagia) and obesity.
- Some people with Prader-Willi syndrome, particularly those with obesity, also develop type 2 diabetes mellitus (the most common form of diabetes).
- People with Prader-Willi syndrome typically have mild to moderate intellectual impairment and learning disabilities. o Behavioral problems are common, including temper outbursts, stubbornness, and compulsive behavior such as picking at the skin. Sleep abnormalities can also occur.
- Additional features of this condition include distinctive facial features such as a narrow forehead, almond-shaped eyes, and a triangular mouth; short stature; and small hands and feet. Some people with Prader-Willi syndrome have unusually fair skin and light-colored hair.
- Both affected males and affected females have underdeveloped

genitals. Puberty is delayed or incomplete, and most affected individuals are unable to have children (infertile).

665. All are true regarding ADH action except -

a) Postoperative secretion is more

b) ADH secretion occurs when plasma osmolality is low

c) Acts on DCT

d) Neuro-secretion

Correct Answer - B

Answer- B. ADH secretion occurs when plasma osmolality is low

- ADH acts on DCT and collecting duct to increase water reabsorption.
- ADH secretion is increased when plasma osmolality is high
- Stress (like surgery) increases ADH secretion.

666. A patient on amphotericin B has weakness and cramps. Serum potassium = 2.3 mEq/dl. Calculate the total parenteral potassium supplementation to be given to the patient over the next 24 hous?

a) 40 mEq

b) 80 mEq

c) 100 mEq

d) 140 mEq

Correct Answer - D

Answer- D. 140 mEq

- For causing a rise of potassium in blood by lmEq/dl, 200 mEq of potassium supplementation is required.
- Hence mathematically speaking this patient requires approximately 0.7 mEq/dl of potassium to rise in the blood leading to a requirement of 0.7 x 200 = 140 mEq over 24 hours

667. Hypokalemia is seen in all except?

a) Barter syndrome

b) Hypokalemic periodic paralysis

c) 21 hydroxylase deficiency

d) Reninoma (JG cell tumour)

Correct Answer - C

Answer- C. 21 hydroxylase deficiency

1. Increased entry into cells-

- An elevation in extracellular pH
- Increased availability of insulin
- Hypokalemic periodic paralysis
- Marked increase In blood cell production
- Hypothermia

2. Increased urinary losses

- Diuretics
- Primary mineralocorticoid excess
- Loss of gastric secretjons
- Non reabsorbable anions
- Renal tubular acidosis
- Hypomagnesemia
- Amphotericin B

668. Aplastic anemia with skeletal abnormalities, short stature and pancreatic exocrine failure suggests a diagnosis of -

a) Fanconi anaemia

b) Diamond-Black fan anaemia

c) G6PD deficiency

d) Schwachman-Diamond syndrome

Correct Answer - D

Answer- D. Schwachman-Diamond syndrome

- Schwachman-Diamond syndrome is the second Most Common Cause of Pancreatic Exocrine Insuficiency afier Cystic Fibrosis.

Features of Schwachman- Diamond syndrome-

i) Pancrease

- Low serum trypsinogen
- Elevated feacal fat

ii) Hematological disorder-

- Neutropenia
- Anemia (aplastic)
- Pancytopenia (aplastic anemia)

iii) Skeletal abnormalities-

- Delayed bone age
- Progressive deformutics
- Pathological fractures
- Abnormal devlopement of growth plate

669. FFP is stored at what temperature ?

a) 2 - 4degrees Celsius

b) 0 - (-25) degrees celsius

c) Below (-25) degrees Celsius

d) 2 - 10 degrees Celsius

Correct Answer - C
Ans. is 'c' i.e., Below (-25) degrees Celsius
Fresh frozen plasma must be stored in blood bank at or below -25 degrees celcius till it is thawed before transfusion.
Most of the clotting factors are stable at refrigerator temperature but factors V and VIII require temperatures less than - 25 degrees Celsius.

670. Faget sign is

a) Tachycardia with hypertension

b) Bradycardia with hyperthermia

c) Tachycardia with hyperthermia

d) Bradycardia with hypothermia

Correct Answer - B

Answer- B. Bradycardia with hyperthermia

The Faget sign (sphygmotheric dissociation) is the unsual pairing of fever and bradycardia.

Often seen in -

- Yellow fever
- Typhoid fever
- Tularaemia
- Brucellosis
- Colorado tick fever

671. Most common cause of death in diphtheria is due to

a) Airway compromise

b) Toxic cardiomyopathy

c) Sepsis

d) Descending polyneuropathy

Correct Answer - B
Answer- B. Toxic cardiomyopathy

- Most common cause of death in diphtheria cardiomyopathy

672. Which of the following anti-cancer drug comes under monoclonal antibodies: *March* 2013

a) Di-ethyl-stilbestrol

b) Tamoxifen

c) Ritumixab

d) Bortezomib

Correct Answer - C
Ans. C i.e. Ritumixab
Rituximab

- It is a chimeric monoclonal antibody against the protein CD20, which is primarily found on the surface of B cells.
- Rituximab destroys B cells, and is therefore used to treat diseases which are characterized by excessive numbers of B cells, overactive B cells, or dysfunctional B cells.
- This includes many lymphomas, leukemias, transplant rejection, and autoimmune disorders.

673. The most common cause of preventable Hospital Death is

a) Acute Pulmonary Embolism

b) Heart Failure

c) Myocardial Infarction

d) Cancer

Correct Answer - A

Answer is A (Acute Pulmonary Embolism):

Embolism is the most common cause of Preventable Hospital Death. Acute Pulmonary Embolism is the most common cause ofpreventable Hospital Death' - 'The 5 minute ICU consult / Lippincott Williams/2012/384

Pulmonary embolism is the most common preventable cause of death in the hospital'.

- *Acute Pulmonary Embolism is the third most common cause of hospital death in the united states after heart failure and cancer*
- *Acute Pulmonary Embolism is the most common cause ofpreventable hospital death°*
- *Acute Pulmonary Embolism is the most common cause of death after surgery in a surgical patient° - 'Comprehensive Hospital Medicine: An Evidence based approach (Elsevier) 2007/89*

674. **FALSE statement about polyarteritis nodosa (PAN) is:**

a) It is a necrotizing vasculitis of small and medium-sized muscular arteries

b) Involvement of the renal and visceral arteries is characteristic.

c) PAN does not involve pulmonary arteries and bronchial vessels

d) Granulomas, significant eosinophilia, and are not observed.

Correct Answer - C

Polyarteritis nodosa (PAN)

- It is a multisystem, necrotizing vasculitis of small and medium-sized muscular arteries.
- Involvement of the renal and visceral arteries is characteristic.
- PAN does not involve pulmonary arteries, **although bronchial vessels may be involved;**
- Granulomas, significant eosinophilia, and an allergic diathesis are not observed.

Ref: Harrisons principles of internal medicine, 18th edition, Page: 2794.

675. Which of the following statements about Mollaret meningitis is true?

a) Caused by Herpes simplex 2 in most of the cases.

b) Is a recurrent, benign septic meningitis

c) Is also referred to as "Benign Recurrent Neutrophilic Meningitis"

d) Does not resolve without treatment

Correct Answer - A
Answer *is* A (Caused by Herpes simplex 2 in most of the cases):
Mollaret's Meningitis is a form of Self-limiting Benign Recurrent Aseptic Lymphocvtic Meningitis that is most commonly caused by HSV-2 infection of the CNS.
Several etiologies have been proposed for Mollaret's Meningitis however recent studies suggest that most cases of Mollaret's Meningitis result from Herpes Simplex Virus -2 (HSV-2) infection
Mollaret's Meningitis

- It is the name given to a Self-Limited Recurrent form of Aseptic Meningitis
- It is also referred to as Benign Recurrent Lymphocytic Meningitis
- Recurrent episodes (typically> 3 episodes) of meningismus and fever lasting for 2-5 days with spontaneous resolution is highly suggestive of a diagnosis of Mollaret's Meningitis
- CSF Examination is characterized by a cloudy spinal fluid with lymphocytic pleocytosis and normal glucose and protein.
- Presence of large granular cells on Papanicolaou's stain of the CSF called `Mollaret's Cells' is considered pathognomonic (Mollaret's cells were once thought to be endothelial cells but are now believed to be from the monocyte/ macrophage family)
- *Several etiologies. have been proposed for Mollaret's Meningitis*

however recent studies suggest that most cases of Mollaret Meningitis result from Herpes Simplex Virus -2 (HSV-2) infection Presence of HSV DNA on PCR is highly suggestive of Mollaret's Meningitis (In most cases HSV-2 DNA is detected

- It is not associated with genital herpetic lesions

676. Which of the following is the most common false localizing neurological sign in assessing brain tumors

a) Seizures

b) Unilateral papilloedema

c) Abnormal unilateral pupil

d) Diplopia

Correct Answer - D
Answer is D (Diplopia):
Sixth Nerve Palsy (Abducent; Lateral Rectus) producing double vision (diplopia) is the most common false localizing sign because of its long intracranial course.
'A right sided brain tumor can produce either a right sided or a left sided sixth nerve palsy as an initial sign. Thus left sided sixth nerve palsy in a right-sided brain tumor represents the infamous false localizing sign'.
The most common false localizing sign is a sixth nerve palsy (diplopia). The nerve is particularly vulnerable because of its long course' - Merritt's Neurology
Brain Tumors

Generalized features

(Non-Localizing signs) Generalized symptoms like headache (most common generalized sign), nausea, vomiting, vertigo, dizziness and non specific mental and cognitive abnormalities represent generalized features of brain tumors that do not help localize the tumor to a particular part of brain.
Localizing /Focal signs

- The presence of a tumor impairs the function of the part of the brain where it resides
- The nature of evolving focal neurological defecit / focal seizures serves as localizing signs for tumors in various parts of brain
- *Unilateral papillaedema, abnormal unilateral pupil, specific aphasia, agnosias etc. can localize the tumor to a particular part of the brain.*

False Localizing Signs

- Neurological signs that reflect dysfunction, distant from the actual part of the brain involved arc called *False localizing signs*
- *·False localizing signs are generally produced from raised ICT and/or shift and compression of brain remote from the primary site.*
- *The most common false localizing sign is sixth nerve palsy (Lateral Rectus Palsy producing Diplopia).* The sixth CN is especially vulnerable because of its long intracranial course.

False Localizing signs (Brain tumors causing Raised ICT are known to produce false localizing signs)

.. Sixth Nerve Palsy (Lateral pectus palsy) producing diplopia is the most common false localizing sign produced by compression of the abducent nerve as it passes over the petrous ridge.

2. Ventricular dilation above midlinc in CSF obstructive lesions or posterior fossa lesions may produce false localizing signs

- *Intellectual and Behavioral changes suggestive of primary frontal pathology*
- *An interference with vertical eye movement (impaired up-gaze) which are programmed in the upper midbrain because of the dilation of posterior part of 3rd ventricle and aqueduct*

.. Ipsilateral hcmiparesis may represent a false localizing sign when a herniating uncus compresses the contralateral cerebral peduncle against the tentorium.

2. Cortical blindness or hemianopia may occur from compression of posterior cerebral arteries with occipital infarction from herniation through the tentorial notch.

3. Tinnitus may present as a false localizing sign as this may result from raised ICP of any cause.

4. Hydrocephalus may lead to presonality changes, gait abnormalities and urinary incontinence suggesting false localizing signs.

677. **All of the following factors stimulate GH secretion, EXCEPT:**

a) Hypoglycemia

b) Exercise

c) Hyperglycemia

d) Stress

Correct Answer - C

Hyperglycemia is known to inhibit growth hormone secretion. Other factors which reduce growth hormone secretion are:

- REM sleep
- Cortisol
- FFA
- Medroxyprogesterone
- Growth hormone and IGF-I

Factors which stimulate GH secretion are:

- Hypoglycemia
- 2-Deoxyglucose
- Exercise
- Fasting
- Increase in circulating levels of certain amino acids
- Protein meal
- Infusion of arginine and some other amino acids
- Glucagon
- Stressful stimuli

Ref: Barrett K.E., Barman S.M., Boitano S., Brooks H.L. (2012). Chapter 18. The Pituitary Gland. In K.E. Barrett, S.M. Barman, S. Boitano, H.L. Brooks (Eds),Ganong's Review of Medical Physiology, 24e.

678. The occurence of hyperthyroidism following administration of supplemental iodine to subjects in endemic area of iodine deficiency is due to ?

a) Wolf-Chaikoff effect

b) Jod-Basedow effect

c) Pemberton effect

d) Graves effect

Correct Answer - B

Answer- B. Jod-Basedow effect

- Synonymous with iodine induced hyperthyroidism and may occur in patients with multinodular goitre after intake of large amount of iodine.

679. Cardiac rhythm seen with hyperkalemia is all except?

a) Sinus arrest

b) Sinus bradycardia

c) Ventricular fibrillation

d) Torsades de pointes

Correct Answer - D
Answer- D. Torsades de pointes

680. Prolonged immobilization leads to?

a) Hypercalcemia

b) Hypocalcemia

c) Hyperkalemia

d) Hypokalemia

Correct Answer - A
Answer- A. Hypercalcemia

- Hypercalcemia of immobilization occurs predominantly in the young and in patients with other reasonsfor a high rate of bone turnow, such as Paget's disease or extensive fractures.
- Immobilization can lead to bone resorption suficient to cause hypercalcemia

681. Lucio phenomenon is treated with

a) Steroids

b) Lenalidomide

c) Clofazimine

d) Exchange transfusion

Correct Answer - D

Answer- D. Exchange transfusion

- Lucion phenomenon is a very rare comcomplication of leprosy.
- It presents as sudden necrotizing vasculopathy in Patients with longstanding, untreated lepromatous leprosy.

Treatment

- Optimal wound care and therapy for bacteremia are indicated. Ulcers tend to be chronic and heal poorly.
- In severe cases exchange transfusion is indicated.

682. Among the toxin produced by clostridium botulinum, the non neurotoxic one is -

a) A

b) B

c) Cl

d) C2

Correct Answer - D
Ans. is 'd' i.e., **C_2**
. Toxin of all types (A, B, C, D, E, F, G) are neurotoxin except C_2 which is a cytotoxin (enterotoxin).

683. Features of Hepatorenal syndrome are

a) Urine sodium < 10 meq/1

b) Normal renal histology

c) Renal function abnormal even after liver become normal

d) a and b

Correct Answer - D

Answer is A & B (urine Na < 10 meq/l and Normal Renal Histology)

Hepatorenal syndrome is associated with normal renal histology and supported by a urine sodium excretion l0meq/L

Hepatorenal syndrome

- Hepatorenal syndrome is defined as a state of functional renal failure (Reduced GFR) in patients with severe liver disease
- *Structurally /Histologically the kidneys are normal and recover function after successful liver transplantation.*
- The pathogenetic hallmark of hepatorenal syndrome is intense renal vasoconstriction with coexistent systemic vasodilatation
- The diagnosis of hepatorenal syndrome is considered in accordance with the following diagnostic criteria.

Diagnostic of Hepatorenal Syndrome

Major criteria

- *Low glomerular filtration rate. as indicated by serum creatinine > 1.5 mg/dL or 24-hr creatinine clearance < 40 mL/min*
- *Absence of shock, ongoing bacterial infection, fluid losses, and current treatment with nephrotoxic drugs*
- *No sustained improvement in renal function (decrease in serum creatinine to 1.5 nig/dL or increase in creatinine clearance to 40 mL/min) after diuretic withdrawal and expansion of plasma volume*

with 1.5L of a plasma expander

- *Proteinuria mg/d1, and no uhrasonographic evidence of obstructive uropathy or parenchymal renal disease Additional criteria*
- *Urine volume < 500 mL/d*
- *Urine sodium < 10 meq/L*
- *Urine osmolality greater than plasma osmolality*
- *Urine red blood cells <50/high- power field*
- *Serum sodium concentration < 130 niEqL*

Note: All major criteria must be present for the diagnosis of hepatorenal syndrome.
Additional criteria are not necessary for the diagnosis but provide supportive evidence.

684. A patient develops pulmonary thromboembolism due to?

a) DIC

b) Coagulation disorder

c) DVT

d) Venous hypertension

Correct Answer - C
DVT REF: Harrison 17th ed chapter 265
When venous thrombi dislodge from their site of formation, they embolize to the pulmonary arterial circulation or, paradoxically, to the arterial circulation through a patent foramen ovale or atrial septal defect. About half of patients with pelvic vein thrombosis or proximal leg DVT develop PE, which is usually asymptomatic. Isolated calf vein thrombi pose a much lower risk of PE, but they are the most common source of paradoxical embolism.

685. Recurrent aspiration pneumonia caused by

a) Dermatomyostis/polymyositis

b) Rheumatoid arthritis

c) Progressive systemic sclerosis

d) Systemic lupus erythrematosus

Correct Answer - C

Answer- C. Progressive systemic sclerosis

- Esophageal hypomotility and incompetence of the lower esophageal sphincter disease causes chronic gastroesophageal reflux and recurrent episodes of aspiration in systemic sclerosis.

686. HLA-B* 1502 is a genetic marker for

a) Systemic lupus erythematosus

b) Polyarteritis nodosa

c) Steven Johnson syndrome

d) Seronegative spondy-arthritis syndrome

Correct Answer - C

Answer- C. Steven Johnson syndrome

- Inilitiiluals who haw HLA-B* 1502 are more likely to experience a severe disorder called Stevens-Johnson syrdrome in response to carbamazepine.

687. Renal artery stenosis is not associated with:
March 2009

a) Marfan's syndrome

b) atherosclerosis

c) polyarteritis nodosa

d) takayasu arteritis

Correct Answer - A
Ans. A: Marfan's syndrome
The most common cause of renal artery stenosis is an **atheromatous plaque**.
Marfan Syndrome:

- Marfan syndrome (MFS) is a spectrum of disorders caused by a heritable genetic defect of connective tissue that has an autosomal dominant mode of transmission.
- The defect itself has been isolated to the FBN1 gene on chromosome 15, which codes for the connective tissue protein fibrillin. Abnormalities in this protein cause a myriad of distinct clinical problems, of which the musculoskeletal, cardiac, and ocular system problems predominate.
- The skeleton of patients with MFS typically displays multiple deformities including arachnodactyly (ie, abnormally long and thin digits), dolichostenomelia (ie, long limbs relative to trunk length), pectus deformities (ie, pectus excavatum and pectus carinatum), and thoracolumbar scoliosis.
- Finally, blindness may result from unrecognized and untreated glaucoma, retinal detachment, and cataracts.

- In the cardiovascular system, aortic dilatation, aortic regurgitation, and aneurysms are the most worrisome clinical findings. Mitral valve prolapse that requires valve replacement can occur as well.
- Ocular findings include myopia, cataracts, retinal detachment, and superior dislocation of the lens.

  Takayasu arteritis is also known as pulseless disease because of frequent occlusion of arteries arising from the aorta.It may also occlude renal arteries.

  Polyarteritis nodosa is a multisystem necrtizing vasculitis of small and medium sized muscular arteries in which involvement of the renal and visceral arteries is characteristic.There is fibrinoid necrosis with compromise of the lumen.

688. PR interval is reduced in ?

a) Wenckebach phenomenon

b) WPW syndrome

c) Hypothyroidism

d) Complete heart block

Correct Answer - B

Answer- B. WPW syndrome

- In WpW, the bundle of Kent is an accessory pathway which allows fast conduction to the ventricles and consequently leads to complaints of palpitations and reduction of PR interval.

689. In case of sudden death in a young football player, the first clinical suspicion would rest on which of the following differentials ?

a) Arrthymogenic right ventricular dysplasia

b) Takotsubo cardiomyopathy

c) Atrial septal defect

d) Eisenmenger complex

Correct Answer - A

Answer- A. Arrthymogenic right ventricular dysplasia

- The most important cause of sudden death in professional footballer in setting of beta myosin testing being available is not HOCM but arrythmogenic right ventricular dysplasia.
- The Desmin gene irresponsible for defect in muscle of right ventricle leading to fibrofatty replacement of the muscle.
- These patients in sitting of adrenergic stimulation can develop a VT or Torsades de Pointes leading to death on the football field.

690. ECG features of Athlete's Heart include all of the following except:

a) High QRS Voltage

b) Early repolarization

c) Tall peaked T waves

d) Shortened QT Interval

Correct Answer - D
Answer *is* D (Shortened QTc Interval)
Athletes Heart is associated with a prolonged QT Interval and not a shortened QT interval.
Athlete's heart is usually associated with a prolonged QT interval because of bradycardia. When corrected for heart rate the QT Interval (QT c) is usually at the upper limit.
Common ECG findings in Athletic Heart syndrome

- Sinus bradycardia
- Sinus arrhythmia
- First-degree AV block
- Second Degree Heart Block (Mobitz 1; Wenckebach AV block)
- Incomplete RBBB
- Notched p waves (increase in amplitude and duration)
- RVH by voltage criteria (High QRS Voltage)
- LVH by voltage criteria (High QRS Voltage)
- Early repolarization changes
- Prolonged QT Interval (Due to bradycardia)
- *QTc interval at upper limit (QTc is QT Interval corrected for Heart Rate)*
- *Tall, Peaked T waves*
- Prominent U Waves

691. Which of the following ECG changes in an Asymptomatic Athlete's Heart should be considered pathological'?

a) Increased amplitude of QRS

b) Second Degree (Mobitz 2) heart block

c) Prominent U Waves

d) T Wave inversion

Correct Answer - B
Answer is B (Second Degree (Mobitz 2) heart block)
Second Degree (Mobitz 2) heart block should he considered a pathological finding in an Athletes Electrocardiogram.
`Various degrees of atrioventricular blocks have been described in endurance athletes. First Degree Blocks and Second Degree (Mobitz Type- 1) are a common finding. However second degree (Mobitz type -2) and third degree blocks are pretty rare and should be considered pathological'
The athletic heart syndrome
- Sports Cardiology: From Diagnosis to Clinical Management (Springer) 2012/ 18, 19
Benign findings
Physical exam
• Grades 1 and 2 systolic ejection murmurs
• Split S2
• S3 or S4
ECG changes
• Sinus arrhythmia

• Sinus bradycardia
• *First-degree heart block*
• *Second-degree heart block (Mobitz 1)*
• Junctional escape beats
• Voltage criteria for hypertrophy (High QRS Voltage)
• Early repolarization
• Incomplete right bundle branch block
• P wave increases in amplitude and duration
• Tall peaked T Waves
• T-wave flattening for inversion that normalizes with exercise
• Prominent U waves

Pathologic findings

Physical exam

• Systolic murmurs at the lower sternal border augmented by Valsalva and decreased with squatting
• Diastolic murmurs

ECG changes

• Down-sloping ST-segment depression
• ST elevation with broad T waves
• Significant Q waves (anterior or inferior pattern)
• Delta waves (Wolff-Parkinson-white)
• *Second-degree heart block (Mobitz 2)*
• *Third-degree heart block*

- *Prolonged QTC interval*
- LVH with ST-T wave strain pattern

These findings assume an asymptomatic athlete. If an athlete is symptomatic or a possible pat o og c n ng tsfoun further workup is indicated.

692. Loud P2 is found in ?

a) Pulmonary HTN

b) MS

c) MR

d) Aortic incompetence

Correct Answer - A
Answer- A. Pulmonary HTN

- Pulmonary hypertension unless proved otherwise.
- Eisenmenger's syndrome due to ASD, VSD, PDA.
- Multiple pulmonary thrombi

693. **All of the following heart sounds occur shortly after S2, EXCEPT:**

a) Opening snap

b) Pericardial knock

c) Ejection click

d) Tumor plop

Correct Answer - C

Pericardial knock, Opening snap, and Tumor plop occurs shortly after S2. *Ejection click occurs after S1.*

694. An elderly diabetic with excruciating pain *in* ear, appearance of granulation in meatus, skull base infection with facial paralysis should be treated with

a) Penicillin

b) Ciprofloxacin

c) 2nd generation ciphalosporin

d) Erythromycin

Correct Answer - A

All clinical features are suggestive of malignant otitis externa, an inflammatory condition of the external ear. *Malignant otitis externa (also k/a Necrotizing external otitis)*

- Malignant otitis externa is an inflammatory condition of the external ear usually spreading deep to cause osteomyelitis of temporal bone and base of skull.
- It occurs primarily in *immunocompromised persons,* especially *older persons* with *diabetes mellitus,* and is often initiated by self-inflicted or iatrogenic trauma to the external auditory canal [May also be seen in pts. who received *radiotherapy to skull base* I
- The most frequent pathogen is *Pseudomonas aeruginosa.* Others may be S. aureus, Staphylococcus epidermidis, Aspergillus, Actinomyces, and some gram-negative bacterial.
- One of the *hallmarkof* malignant otitis externs is *granulation tissue in the external auditory canal,* especially at the *hone-cartilage* junction.
- As the infection spreads to the temporal bone, it may extend into the cranium and result in *cranial nerve palsies* (commonly the *facial nerve)*

- Cranial nerve involvement indicates *poor prognosis.* Death is usually due to *intracranial complications* such as *sigmoid sinus thrombosis.*
- It has *high mortality rate* due to which the name *'malignant'* is used for this disease.

  Treatment

  Includes correction of immunosuppression (when possible), local treatment of the auditory canal, long-term systemic antibiotic therapy, and in selected patients, surgery.

  - In all cases, the external ear canal is cleansed and a biopsy specimen of
  the granulation tissue sent for *culture.*
  - IV antibiotics is directed against the offending organism.
  - For Pseudomonas aeruginosa, the most common pathogen, the regimen involves an *antipseudomonal penicillin* or cephalosporin (3rd generation-piperacillin or ceftazidime) with an aminoglycoside. A fluoroquinolone antibiotic can be used in place of the aminoglycoside.

  Ear drops containing antipseudomonal antibiotic e.g. ciproflaxacin plus a glucocoticoid is also used.

  - Early cases can be managed with oral and otic fluoroquinolones only.
  - Extensive surgical debridement once an important part of the treatment is now rarely needed.

695. C.V.P. (Central Venous Pressure) and pulmonary wedge pressure give an accurate assessment of all the following except -

a) Tissue perfusion

b) Volume depletion

c) Volume overload

d) Myocardial function

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

696. Sine wave pattern on ECG is done when serum potassium exceeds mEq/dl?

a) > 6 mEq/dl

b) > 7 mEq/dl

c) > 8 mEq/dl

d) > 10 mEq/dl

Correct Answer - C

Answer- C. > 8 mEq/dl

- Sine wave pattern- > 8 mEq/dl

697. Dicrotic pulse is seen in ?

a) HOCM

b) DCM

c) RCM

d) Left ventricular failure

Correct Answer - B

Answer- B. DCM

- Dicrotic pulse is seen in dilated cardiomyopathy.
- Has two palpable waves are in systole and one in diastole.

698. An association of which of the following bacteria has been suggested with atherosclerosis:

a) Staphylococcus Aureus

b) Streptococcus Pneumoniae

c) Chlamydia Pneumoniae

d) Aspergillus Fumigatus

Correct Answer - C
Evidence for Chlamydia Pneumoniae thus far presents the strongest association with human atherosclerosis.

699. Double density sign in Mitral stenosis is a sign of enlargement of

a) Right Atrium

b) Left Atrium

c) Left Auricle

d) Right Auricle

Correct Answer - B

Answer- B. Left Atrium

- Double density is seen on frontal chest radiograph in the presence of left atrial enlargement and occurs when the right side of the left atrium pushes behind the right cardiac shadows indenting the lung and forming its own district sihhouette.

700. Severity of Mitral Regurgitation may be judged by

a) Intensity of murmur

b) Duration of murmur

c) Left ventricular S_3

d) Loud S_1

Correct Answer - C

Answer is C (Left Ventricular S_3)

The severity of Mitral Regurgitation may be judged clinically by the presence of left ventricular dilatation and the presence of third heart sound (Left Ventricular $SJ_?$. These features indicate a more severe disease

'A third heart sound (S_3) in chronic mitral regurgitation is usually indicative of severe regurgitation'

Severity of Mitral Regurgitation:

.. . If the murmur is harsher and has a lot of low and medium frequencies. It usually indicates a lot of flow and therefore will imply significant regurgitation. A harsh decrescendo mitral regurgitation murmur is usually indicative of severe regurgitation because the decrscendo effect is caused by early buildup of a very high v wave pressure in the left atrium resulting from a severe degree of regurgitation. Thus decreasing the gradient in late systole (If the murmur, on the other hand, is all pure high frequency and confined only to late systole. Then it must indicate a high pressure difference between the left ventricle and the left atrium and therefore only mild regurgitation).

2. When the mitral regurgitation is severe, the volume overload on the

left ventricle will be high, resulting in an enlarged left ventricle. This may be reflected in a displaced hyperdynamic wide –area left ventricular apical impulse. In addition, the hyperdynamic left ventricle will have rapid ejection. This will make the A2 occur early. Resulting in a wide-split S2. Thus, a wide –split S2 in the presence of mitral regurgitation is a sign of severe regurgitation if the wide split is not caused by P2 delay.

3. In addition, severe regurgitation because of the volume load effect will have a torrential inflow through the mitral valve during diastole. This will set up the necessary conditions for the production of an S3 or a mid –diastolic inflow rumble. The presence of an S3 or an inflow rumble at the apex will, therefore, be a sign of significant mitral regurgitation as well.

Severity of Mitral Regurgitation : Features indicating increased severity:

- *Presence of Left ventricular S3 or an inflow rumble at the apex*
- *Harsh Decrescendo murmur with lot of low and medium frequencies*
- *Wide split S, due to early A2 (not caused by P2 delay) in presence of MR*

Note :

Loudness and duration of Mitral regurgitation murmur does not always correlate with the severity of the regurgitation

701. Blood pressure is difficult to measure in a patient with-

a) Mitral stenosis

b) Aortic stenosis

c) Complete heart block

d) Atrial fibrillation

Correct Answer - D
Answer- D. Atrial fibrillation

- Enlarged left ventricle
- Wide split 52
- Harsh Decresendo murmur
- Presense of S3
- Diastolic murmur
- Fourth heart sound

702. A 50-year-old asymptomatic man with established aortic stenosis undergoes Exercise Stress testing according to Bruce Protocol. The stress test was terminated at 11 minutes due to development of fatigue and dyspnea. Regional pressure gradient was observed to be 60 mm Hg between the two sides of the aortic valve. What is the best management.

a) Angiogram

b) Aortic valve replacement

c) Aortic Balooning

d) All

Correct Answer - B

Answer *is* B (Aortic valve replacement)

The patient in question has asymptomatic aortic stenosis but develops symptoms on exercise (abnormal/positive exercise test). Also the presence of mean pressure gradient of 60mm Hg put this patient into the category of 'Very Severe Aortic Stenosis' or 'Critical Aortic Stenosis'.

Optimal management of asymptomatic severe Aortic Stenosis continues to be a source of ongoing clinical controversy. Surgical Aortic Valve Replacement and Watchfull waiting with frequent reassessments (observation), both continue to be legitimate though

debatable treatment options.
Since the patient in question has 'Very Severe AS' and 'Abnormal Stress Testing' he should be considered for surgical intervention in the form of Aortic Valve Replacement (A VR).

50-year-old patient with Asymptomatic Severe Aortic Stenosis

=5m/s, mean gradient >=50mm Hg, aortic valve ara <=0.6 cm2) when operative mortality is < 1% " align="left" height="132" width="316">**Positive Exercise Stress Test**	**Mean Pressure Gradient > 60** *mm* **Hg**
Symptoms during exercise such as dyspnea, angina, and syncope or near syncope constitute positive criteria indicating an abnormal stress test in patients with asymptomatic aortic stenosis. *'Severe Aortic Stenosis with an abnormal response to exercise is considered a Class Hb indication for Aortic Valve Replacement according to the ACC/AHA Guidelines.'* *'Severe Aortic Stenosis with an abnormal response to exercise is considered a Class IC indication for Aortic Valve Replacement according to European Cardiology Society Guidelines (ECS Guidelines)'*	Mean pressure gradient > 60 mm Hg and/or Aortic valve area < 0.6 cm¹` and /or Aortic Jet velocity > 5.0 m per second is classified as *'Extremely Severe Aortic Stenosis'* (Critical Aortic Stenosis) *'Extremely Severe Aortic Stenosis (mean gradient > 60 mm Hg) is considered a class IIb indication for Aortic Valve Replacement according to the ACC/AHA Guidelines.'*

Study	*Conclusion*
I. 'Clinical outcomes in non-surgically managed patients with very	*'Surgery should always be considered in very severe AS regardless of symptoms, and*

severe versus severe aortic stenosis' *(Heart doi:O. 1136/heartjn1-2011-300137; Valvular heart disease; Original article)*	*particular attention needs to be paid to their extremely poor outcomes.'*
2. *'Early Surgery Versus Conventional Treatment in Asymptomatic Very Severe Aortic Stenosis'* (Tirculation': 2010; 121: 1502-1509; Valvular heart disease; Original article)	*'Compared with the conventional treatment strategy, early surgery is associated with improved survival by effectively decreasing cardiac mortality and sudden cardiac death in patients with very severe AS. This result suggests that early surgery can be a therapeutic option to further improve clinical outcome in asymptomatic patients with very severe AS and low operative risk.'*

Classification of Aortic Valve Stenosis Severity

Severity	*Valve Area (cm2)*	*Maximum Aortic Velocity (m/sec))*	*Mean Pressure Gradient (mm Hg)*
Mild	*1.5 – 2.0*	*2.5 – 3.0*	*<25*
Moderate	*1.0 –1.5*	*3.0-4.0*	*25-40*
Severe	*0.6-1.0*	*>4.0*	*>40*
Critical (Extremely Severe)	*<0.6*	*>5.0*	*>50-60*

703. Sub-valvular Aortic Stenosis is known to be associated with all of the following, except:

a) Aortic Regurgitation

b) Coarctation of Aorta

c) Tricuspid Valve Atresia

d) Ventricular Septal Defect

Correct Answer - C

Answer is C (Tricuspid valve atresia)

Tricuspid Valve Atresia is not associated with Subvalvular Aortic Stenosis. Subvalvular Aortic Stenosis (Subaortic Stenosis)

- Subaortic stenosis is defined as obstruction to left ventricular outflow below the aortic valve.
- It is the second most common form of fixed aortic stenosis.
- The most common form of subaortic stenosis is 'Discrete'

Subaortic Stenosis is further classified into 'Discrete' type and 'Diffuse Tunnel-Type' narrowing

Types of Subaortic Stenosis

`Discrete' (85 to 90 percent) : Most common form of subaortic stenosis `Diffuse' or 'Long Segment Tunnel-Type'(10%to 15%)

Some have attempted to subdivide the discrete form into membranous and fibromuscular but such distinction is difficult

- Boys are more frequently affected than girls at a ratio of approximately 2:1.
- Subaortic stenosis is associated with other cardiac abnormalities in 50% to 70% of patients

The two most_ frequently associated defects with subaortic stenosis

are Ventricular Septal Defect and Coarctation of Aorta.

Aortic regurgitation is the most common complication of subaortic stenosis *occurring in as many as 50 percent of patients*

Cardiac Anomalies Associated with subaortic stenosis

- Aortic regurgitation
- Aortic valve stenosis
- Patent ductus arteriosus
- Coarctation of the aorta
- Interrupted aortic arch
- Mitral valve abnormalities
- Ventricular septal defect
- Repaired a trioventricular septal defects
- Double-chambered right ventricle

704. Duroziez's sign is seen in

a) Aortic Regurgitation

b) Tricuspid RegurgitationMitral stenosis

c) Pericardial effusion

d) None

Correct Answer - A

Answer- A. Aortic Regurgitation

- Refers to systolic and distolic murmurs heard over the femoral artery while partially compresslng the vessel with the diaphragm of the stethoscope.

705. The most common cause of tricuspid regurgitation is secondary to

a) Rheumatoid heart disease

b) Dilatation of right ventricle

c) Coronary artery disease

d) Endocarditis due to intravenous drug abuse

Correct Answer - B
Answer B (Dilatation of right ventricle)
"Most commonly Tricuspid Regurgitation is functional and secondary to marked dilatation of RV and the tricuspid annulus"

706. Antiboiotic Prophylaxis for infective endocarditis is indicated in:

a) Isolated secundum ASD

b) Mitral valve prolapse without regurgitation

c) Prior coronary artery bypass graft

d) Coarctation of aorta

Correct Answer - D
Answer *is* D (Coarctation of Aorta)
Coarctation of Aorta is a high risk cardiac lesion fior the development of infective endocarditis and an indication fir antibiotic prophyloxis.

707. All of the following statements about Fungal Endocarditis are true except

a) Candida is the most common agent

b) Life-long antifungal agents may be required

c) Surgical treatment is often recommended

d) Good prognosis with treatment

Correct Answer - D

Answer- D. Good prognosis with treatment

Most commonly associated with candida and Aspergillus.

- Most commonly associted with i.v. drug abuse and prosthetic valves and suppressed immunity.
- Antifungal agents do not cure fungal carditis.
- Both medical and surgical management required.

708. HbH is characterized by

a) Deletion of three alpha genes

b) Deletion of three alpha and one beta gene

c) Deletion of two alpha and two beta genes

d) Deletion of four alpha genes

Correct Answer - A
Answer- A. Deletion of three alpha genes

- HbH disease- Deletion of three alpha genes (--/-alpha)- hemolytic anemia

709. Which of the following represent Fetal Haemoglobin (HBF)

a) Alpha 2 Beta2

b) Alpha 2 Gamma 2

c) Alpha 2 delta 2

d) Delta 4

Correct Answer - B
Answer- B. Alpha 2 Gamma 2

- Alpha 2 Gamma 2- < 2% of Total adult HB

710. Hemoglobin Portland is best defined as

a) Alpha 2 : Delta 2

b) Alpha 2 : Epsilon 2

c) Zeta 2 : Gamma 2

d) Zeta 2 : Epsilon 2

Correct Answer - C

Answer- C. Zeta 2 : Gamma 2

- Hb Gower I → Zeta 2 / epsilon 2
- Hb Portland → Zeta 2 / gamma 2
- Hb Gower II → Alpha 2 / epsilon 2

711. Anaemia due to antibodies against blood group antigens

a) Hereditary spherocytosis

b) G6PD deficiency

c) Haemolytic disease of the newborn

d) Alpha thalassemia major

Correct Answer - C

Answer- C. Haemolytic disease of the newborn

- Hemolytic disease of thefetus and newborn (HDFN), also known as alloimmune HDFN or erythroblastosis fetalis, is caused by the destruction of reil blood cells (RBCs) of the neonate or fetus by maternal IgG antibodies.

712. Which of the following is an immune response cause of anaemia

a) Diamond black fan anaemia

b) Hereditary spherocytosis

c) Glucose-6-phosphate dehydrogenase deficiency

d) Haemolytic disease of the newborn

Correct Answer - D

Answer- D. Haemolytic disease of the newborn

- Hemolytic disease of newborn is an immune mediated cause of anemia group antigens on fetal red blood cells resulting from maternal antibodies against blood.

713. **The gold standard test to diagnose PNH is:**

a) Bone marrow study

b) Sucrose hemolysis test

c) Flow cytometry

d) Genetic study

Correct Answer - C

The gold standard test to diagnose PNH today is flow cytometry.

Reference:

Harrisons Principles of Internal Medicine, 18th Edition, Page 884

714. The most common inherited from of aplastic anaemia

a) Fanconi anaemia

b) Schwachman-Diamond syndrome

c) Diamond-Blackfan anaemia

d) Dyskeratosis Congenita

Correct Answer - A

Answer- A. Fanconi anaemia

- Most common inherited congenital anemia is Fanconis anemia.

715. Which doesn't have a role in acute attack of asthma?

a) Cromolyn sodium

b) Ipratropium

c) Steroids

d) Salbutamol

Correct Answer - A
Cromolyn sodium REF: 11th edition of Goodman & Gilman's The Pharmacological Basis of Therapeutics page 463
Short-Acting B2 Adrenergic Receptor Agonists: Drugs in this class include albuterol, Levalbuterol, the (R)-enantiomer of albuterol, Metaproterenol, Terbutaline, and Pirbuterol. These drugs are used for acute inhalation treatment of bronchospasm. The most effective drugs in relaxing airway smooth muscle and reversing bronchoconstriction are short-acting b2 adrenergic receptor agonists. They are the preferred treatment for rapid symptomatic relief of dyspnea associated with asthmatic bronchoconstriction.
Glucocorticoids: Systemic glucocorticoids long have been used to treat severe chronic asthma or severe acute exacerbations of asthma. Systemic glucocorticoids are used for acute asthma exacerbations
Cromolyn: The main use of cromolyn and nedocromil is to prevent asthmatic attacks in individuals with mild- to-moderate bronchial asthma. These agents are ineffective in treating ongoing bronchoconstriction. When inhaled several times daily, Cromolyn inhibits both the immediate and the late asthmatic responses to antigenic challenge or to exercise.
Ipratropium: In acute bronchoconstriction, the combination of a b2

adrenergic agonist and ipratropium is more effective than either agent alone and more effective than simply giving more b2 adrenergic agonist. Thus, the combination of a selective b2 adrenergic agonist and ipratropium should be considered in acute treatment of severe asthma exacerbations.

716. **Richter’s syndrome refers to which of the following malignant transformation?**

a) CLL evolving into aggressive lymphoma

b) Hairy cell leukemia evolving to AML

c) Blast crisis in CML

d) Splenic infiltration in NHL

Correct Answer - A

Richter's transformation or Richter's syndrome is a complication of B cell chronic lymphocytic leukemia (CLL) or hairy cell leukemia (HCL) in which the leukemia changes into a fast-growing diffuse large B cell lymphoma.

717. The lymphocytic and histiocytic variant of Reed-Sternberg cell is seen in:

a) Follicular center lymphoma

b) Lymphocyte depleted Hodkin's disease

c) Nodular sclerosis Hodkin's disease

d) Lymphocyte predominant Hodkin's disease

Correct Answer - D
Answer is D (Lymphocyte Predominant Hodgkin's disease)
Lympho-Histiocytic variants (L and H cells) have a delicate multilobed nucleus resembling a popcorn kernel and are also called popcorn cells.
Lymphohistiocytic variants are specific to lymphocyte predominance subtype of Hodgkin's Lymphoma.

718. Which one of the following laboratory test differentiates leukamoid reaction from chronic myeloid leukemia?

a) LAP (leukocyte alkaline phosphatase)

b) LCA (leukocyte common antigen)

c) MPO (myelo-peroxidase)

d) TRP A (tartrate resistant alkaline phosphatase)

Correct Answer - A

Answer- A. LAP (leukocyte alkaline phosphatase)

- A leukemoid reaction is an exuberant form of leucocytosis with leucocyte count upto 5000/mm3, that may follow infections.

719. **Microscopy of a specimen shows “pawn ball megakaryocytes”. This patient may have:**

a) Myelodysplastic syndrome

b) Idiopathic thrombocytopenic purpura

c) Thrombotic thrombocytopenic purpura

d) Chloramphenicol toxicity

Correct Answer - A

Myelodysplastic syndromes (MDS) are a group of clonal stem cell disorders characterized by maturation defects associated with ineffective erythropoiesis and a high risk of transformation to AML. The most characteristic finding is disordered differentiating affecting all three lineages i.e., erythroid, myeloid, and megakaryocytic.

- Erythroid lineage effects:
  - Ringed sideroblasts,that is erythroblasts with iron-laden mitochondria visible as perinuclear granules on Prussian blue stain
  - Megaloblastoid maturation, resembling that seen in vitamin B12 or folate deficiency
  - Nuclear budding abnormalities, producing misshapen nuclei
- Granulocyte lineage effects:
  - Neutrophils with decreased numbers of secondary granules, toxic granulations, or Dohle bodies
  - Pseudo-Pelger-Huet cells (neutrophils with only two nuclear lobes)
  - Myeloblasts may be increased but account for less than 20% of overall marrow cellularity
- Megakaryocytic lineage effects:
  - Megakaryocytes with single nuclear lobes or multiple separate nuclei (“**pawn ball**” **megakaryocytes**

Ref: Pocket Companion to Robbins & Cotran Pathologic Basis of Disease By Richard Mitchell, Vinay Kumar, Nelson Fausto, Abul K. Abbas, Jon C. Aster, 8th edition, Page 334-335.

720. Commonest site of lytic lesion, in multiple myeloma is

a) Vertebral column

b) Femur

c) Clavicle

d) Pelvis

Correct Answer - A
Answer is A (Vertebral column)
The commonest site of involvement in multiple myeloma is vertebral column.
Although *any* bone ma^{y} be involved, the following order of involvement *is* most often seen.
Vertebral column (66%) > Ribs (44%) > Skull(41%)> pelvis (28%)>frinur (24%) > clavicle(10%) > scapula(10%)

721. A patient with Myeloproliferative syndrome presents with decreased while cell count and decreased platelets. The most likely diagnosis is:

a) Chronic myeloid leukemia

b) Myelofibrosis

c) Polycythemias vera

d) Essential thrombocytosis

Correct Answer - B

Answer is B (Myelofibrosis)

Myelofibrosis may be associated with decreased white cell count and decreased platlet counts. Myelofibrosis is an established cause for panyctopenia with cellular marrow.

Condition	**WBCount**	**Hematocrit/ Red cell mass**	**Platelet count**	**Red cell morphology**	**Splenor**
CML	↑↑	N	N or ↑	N	*Massive*
Myelofibrosis	N or ↓ or ↑	N or ↓	↓ or N or ↑	Abnormal	*Massive*
Polycythemia	N or ↑'	↑	N or ↑	N	*Moderat (Massive late stag*
Essential Thrombocytosis	N or ↑	N	↑↑	N	*Mild*

722. Gaisbock syndrome is known as

a) Primary Familial Polycythemia

b) High Altitude Erythrocytosis

c) Spurious Polycythemia

d) Polycythemia Vera

Correct Answer - C
Answer is C (Spurious Polycythemia)
Gaisbock syndrome refers to Spurious Polycythemia or Relative Erythrocytosis due to decreased plasma volume.

723. All are true for transplanted kidney except

a) Humoral antibody responsible for rejection

b) CMI is responsible for rejection

c) Previous blood transfusion

d) HLA identity similarity seen in 1:100 people

Correct Answer - D

Answer- D. HLA identity similarity seen in 1:100 people

- Within any particular family, sibling's have a 7:4 chance of being HLA identical. In contrast among unrelated
- people, the probabilities of HLA identity in several thousand depending upon phenotype involved' It is due to the fact that
- HLA complex is inherited intact as two haplotypes.

724. Screening test for sclerodema

a) Anti-nuclear antibody

b) Ul-Ribonucleoprotein antibody

c) Anti- L.K.M. antibody

d) Anti- topoisomerase antibody

Correct Answer - A

Answer- A. Anti-nuclear antibody

- ANA is the screening method of choice for systemic rheumatic disease such as systemic lupus erythyematous (SLE), mixed connective tissue disease, Sjogren syndrome, scleroderma, CREST syndrome, rheumatoid arthritis, polymyositis, dermatomyositis.

725. A 30 year old lady presents to the outpatient department with an Erythematous butterfly rash on her checks. Which of the following antibodies should be assayed initially for her suspected condition -

a) Anti-Ds-DNA

b) Anti-Ro-Antibody

c) Anti-Centromere-Antibody

d) Anti-mitochondria(-Antibody

Correct Answer - A
Ans. is 'a' i.e., Anti-Ds-DNA
o *Presence of an erythematous butterfly rash on the cheeks (malar rash) of this 30 year old female suggests a possible diagnosis of SLE.*
o Anti-Ds-DNA-Antibodies (and Anti-Sin-Antibodies) are the most specific antibodies for SLE.

726. Pick's body in pick's disease is:

a) Tau protein

b) Alpha synuclein

c) Beta synuclein

d) A amyloid

Correct Answer - A

Answer is A (Tau protein) :

Classic Pick's bodies stain positive with silver and tau-Harrison

Classification of Neuro degenerative disorders based on the major type of Protein Aggregations (inclusions)

Type of Protein Aggregate

Tau Protein (Tauopathies)

- *Pick's disease (Pick's bodies)*
- *Progressive supranuclear palsy (Tufted Astrocytes)*
- *Cortico basal degeneration (Astrocytic plaques)*
- *Familial Fronto temporal dementia and Parkinsonism linked to chromosome 17 (FTDP-17)*

Alpha Synuclein Protein (Synucleinopathies)

- Sporadic Parkinson's disease (Lewy bodies)
- Diffuse Lewy body disease (Lewy bodies)
- Multiple System Atrophy
  - ShyDrager syndrome
  - Striatonigral degeneration
  - Olivopontocerebellar atrophy

Facts to Remember :

Pick's bodies contain Tau protein Lewy bodies contain a synucleine

727. Which of the following is NOT a complication of bronchiectasis :

a) Lung abscess

b) Lung cancer

c) Amylodosis

d) Empyema

Correct Answer - B

Answer is B (Lung cancer):

Bronchiectasis is not a premalignant condition.

Complications of Bronchiectasis:

- Massive hemoptysis.
- Empyema with or without bronchopleural fistula.
- Purulent pericarditis.
- Respiratory failure with chronic cor pulmonale.
- Metastatic abscesses in brain and bones.
- Secondary amyloidosis with nephrotic syndrome.
- Lung abscess: Bronchiectasis is a predisposing factor for Lung abscess .

728. Which of the following is characteristically *not* associated with the development of interstitial lung disease ?

a) Organic dusts

b) Inorganic dusts

c) Toxic gases e.g. chlorine, sulphur dioxide

d) Inhalation of tobacco smoke

Correct Answer - D
Ans. is 'd' i.e., Inhalation of tobacco smoke
Interstitial lung disease (ILD)
o Interstitial lung disease refers to a group of lung diseases affecting the interstitum of lung, i.e. alveolar epithelium, pulmonary capillary endothelium, basement membrane, perivascular and perilymphatic tissues.
o **ILD** is also known as **diffuse parenchymal disease.**
o In general, the clinical and pulmonary functional changes are those of restrictive lung disease.
o Chest radiographs show diffuse infiltration by *small nodules, irregular lines, or ground glass shadows, hence the term infiltrative.*
o In advanced stages, there is scarring and gross destruction of lung often referred to as *end-stage lung or honeycomb lung.*
o ILD may be classified according to the cause
1. Inhaled substances
o Inorganic ---> Silicosis, Asbestosis, Berylliosis
o Organic ---> Hypersensitivity, pneumonitis.

2. **Drug induced** **--->** Antibiotics, chemotherapeuic and antiarrhythmic agents.
3. **Connective tissue disease** **--->** SLE, RA, systemic sclerosis, Dermatomyositis.
4. **Infection** **—>** Atypical pneumonia, Pneumocystis pneumonia, Tuberculosis.
5. **Toxic gases**
6. **Idiopathic** **---->** Sarcoidosis, Idiopathic pulmonary fibrosis, Hamman - Rich syndrome.
7. **Malignancy** **--->** Lympangitic carcinomatosis.

729. Residual volume is best measured by ?

a) Body plethysmography

b) Helium dilution method

c) Spirometry

d) All of above

Correct Answer - A

Answer- A. Body plethysmography

- pulmonary plekysmographs are commonly used to measure the functional residual capacity (FRC) of the lungs → the volume
- in the lungs when the muscles of respiration are relaxed → and total long capacity

730. Breath sounds are decreased in following except

a) Lobar pneumonia

b) Pneumothorax

c) Pleural effusion

d) Atelectasis

Correct Answer - A
Answer- A. Lobar pneumonia

731. Shock lung is characterized by ?

a) Alveolar proteinosis

b) Bronchiolitis obliterans

c) Diffuse pulmonary hemorrhage

d) Diffuse alveolar damage

Correct Answer - D
Diffuse alveolar damage *[Ref: Harrison 17th/e p. 1680-1681; Robbin's 7th/e p. 715]*
Make it clear that shock lung is a synonym for acute respiratory distress syndrome, diffuse alveolar damage acute alveolar injury and acute lung injury.
- Shock lung = ARDS = Diffuse alveolar damage = Acute alveolar injury = acute lung injury
Pahology
i) Acute stage
- The lungs are heavy firm, red and boggy and exhibit congestion, interstitial and intraalveolar edema, inflammation and fibrin deposition.
- The alveolar walls become lined with *waxy hyaline membranes* that are morphologically similar to those seen in hyaline membrane disease of neonates.
- The hyaline membrane contains *fibrin rich edema fluid* mixed with the cytoplasmic and lipid remnants of necrotic
epithelial cells.
ii) Organizing stage - In this stage *type II epithelial* cells undergo proliferation in an attempt to regenerate the alveolar lining.
iii) Resolution - Resolution is unusual

732. Which of the following is NOT seen in ARDS:
March 2013

a) Pulmonary edema

b) Hypercapnia

c) Hypoxemia

d) Stiff lung

Correct Answer - B
Ans. B i.e. Hypercapnia
ARDS/ Diffuse alveolar damage/ Shock lung

- Hypoxia,
- Hypocapnia,
- Acute onset of respiratory failure,
- Ground glass appearance on chest X-ray
- Air bronchogram sign is positive
- Associated with:
  Pancreatitis,
  - Trauma,
  - Multiple blood transfusions etc.

733. All are true for nephrotic syndrome except:
March 2012

a) Edema

b) Massive proteinuria

c) Hyperlipidemia

d) Hypertension

Correct Answer - D
Ans: D i.e. Hypertension
The nephrotic syndrome, also due to glomerular disease, is characterized by heavy proteinuria (more than 3.5 gm/ day), hypoalbuminemia, sever edema, hyperlipidemia, and lipiduria (lipid in the urine)

- Nephritic syndrome is due to glomerular disease and is dominated by the acute onset of usually grossly visible hematuria (RBC in urine), mild to moderate proteinuria, and hypertension; it is the classic presentation of the post-streptococcal glomerulonephritis

734. Dent's disease is characterized by all except

a) Chloride channel defect

b) Males are affected

c) Nephrolithiasis

d) Defect in limb of Loop of Henle

Correct Answer - D

Answer- D. Defect in limb of Loop of Henle

- Dent's disease refers to heterogenous group of X-linked disorders.
- It b characterized by manifestations of proximal tubule dysfunction (PT) dysfunction associated with hypercalciuria nephrolithiasis, nephrocalcinosis and progressive renalfailure
- These features are found in males only.
- mutation in gene encoding CLS-S, a Voltage gated Chloide channel.

735. All can be manifestation of polycystic kidney except

a) Urine retention

b) Renal hypertension

c) Renal failure

d) Haematuria

Correct Answer - A
Answer- A. Urine retention
Chronic flank pain

- Gross and microscopic hematuria is common.
- Nephrolithiasis
- Hypertension
- Progressive decline in renal function.

736. DOC for Tourette syndrome

a) Haloperidol

b) Valproate

c) B complex

d) Clonidine

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

- Earlier Haloperidol was considered as DOC for Tourette syndrome.
- Clonidine is considered as DOC for Tourette syndrome

Treatment

There's no cure for Tourette syndrome. Treatment is aimed at controlling tics that interfere with everyday activities and functioning. When tics aren't severe, treatment might not be necessary.

Medication

- **Medications that block or lessen dopamine.** Fluphenazine, haloperidol (Haldol), risperidone (Risperdal) and pimozide (Orap) can help control tics.
- **Botulinum (Botox) injections**
- **Central adrenergic inhibitors.** Medications such as clonidine (Catapres, Kapvay) and guanfacine (Intuniv) — typically prescribed for high blood pressure — might help control behavioral symptoms such as impulse control problems and rage attacks.
- **Antidepressants.** Fluoxetine (Prozac, Sarafem, others)
- **Antiseizure medications.**

Therapy

- **Behavior therapy.** Cognitive Behavioral Interventions for Tics, including habit-reversal training, can help you monitor tics, identify premonitory urges and learn to voluntarily move in a way that's incompatible with the tic.
- **Psychotherapy.** In addition to helping you cope with Tourette syndrome, psychotherapy can help with accompanying problems, such as ADHD, obsessions, depression or anxiety.
- **Deep brain stimulation (DBS).** For severe tics that don't respond to other treatment, DBS might help. DBS involves implanting a battery-operated medical device in the brain to deliver electrical stimulation to targeted areas that control movement.

737. Clinical features of congenital edema are all except

a) Bilateral

b) Involvement of face

c) Onset before 2 years of age

d) Limb involvement

Correct Answer - C

Answer- C. Onset before 2 years of age

Congenital lymphedema

- Has onset before the 1st year of life (according to Schwartz and Bailey onset is <2 years)
- congenital lymphedema can involve a single lower extremity, multiple limbs, the genitalia or the face.
- The familial version of congenital lymphedema is called Milroy's disease.

738. Soldier injured in combat presenting with edema, crepitus, brown exudate

a) Gas gangrene

b) Crush syndrome

c) Long bone fracture

d) None

Correct Answer - A

Answer- A. Gas gangrene

- Crepitus in soft tissue is characteristic of gas gangrene.
- Edema, crepitus and brown exudate after injury suggest the diagnosis of gas gangrene.

739. Most common cause of subarachnoid hemorrhage is:

a) Hypertension

b) A.V. malformation

c) Berry aneurysm

d) Tumours

Correct Answer - C
Answer *is* C (Berry aneurysm):
Most common cause of "subarachnoid Haemorrhage" is spontaneous rupture Q *of saccular aneurysms (excluding trauma).*
Most common cause of "intracerebral Haemorrhage" is *Hypertension* Q due to rupture of small *perfbrating arteries or Arterioles.Q*

740. 80 % of gall stones contain

a) Bile pigments

b) Cholesterol

c) Calcium salts

d) Phospolipids

Correct Answer - B
Answer- B. Cholesterol
Types of gall stones-
1. Cholesterol
- Pure cholesterol (10%)
- Mixed (70%)

2. Pigment
- Black pigment stones
- Brown pigment stones

741. Drug of choice for bleeding oesophageal varices is?

a) Ethanolamine oleate

b) Octreotide

c) Propanolol

d) Phytonadione

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

- Among the given options, only octeride is used (otherwise vasopressine analogue terlipressine is the DOC).
- Has been explained in previous sessions.

742. Surgery in varicose veins is NOT attempted in presence of -

a) Deep vein thrombosis

b) Multiple incompetent perforators

c) Varicose veins with leg ulcer

d) All of the above

Correct Answer - A
Ans. is 'a' i.e., Deep vein thrombosis
Deep vein thrombosis is a contraindication for tA of varicose veins. Varicose vein surgery should never be attempted in a case where deep vein thrombosis exists along with varicose veins, because in these cases superficial veins are the only valved venous pathway and excising them will only aggravate the condition.

743. Clinical scenario with bag of worms

a) Varicocele

b) Hydrocele

c) Torsion of testis

d) Congenital hernia

Correct Answer - A

Answer- A. Varicocele

- A varicocele is a varicose (tortuous) dilatation of the vein draining the testis.
- C/F
- On palpation, testicules may feels like a bag of worms
- varicocele is painless and the only complaint of the patient is swelling.

744. False statement regarding fibroadenoma: *March 2011*

a) Painless

b) Unilateral

c) Responds well to hormone

d) Firm

Correct Answer - C
Ans. C: Responds well to hormone

745. Man comes with head injury investigation of choice

a) CECT

b) X - ray

c) MRI

d) Plain CT

Correct Answer - D

Answer- D. Plain CT

- Investigation of choice for head trauma patient is CT scan.

746. Which weight loss regime decreases risk of gall bladder stone

a) 2 -3 Lt water per day

b) 2 - 3 Kg wt loss / month

c) Very low calorie diet

d) High fat diet

Correct Answer - B

Answer- B. 2 - 3 Kg wt loss / month

- Rkk of gall stone formation in obese persons during active weight loss seems to increase in an exponential fasion.
- The data suggest that rates of weight loss should not exceed an average of 7.5 kg per week

747. Pt with complains of dysphagia can take liquid only and history of smoking and weight loss

a) Achalasia cardia

b) Barrets esophagus

c) Carcinoma esophagus

d) None

Correct Answer - C
Answer- C. Carcinoma esophagus
History of smoking → A risk factor for esophageal carcinoma.
Dysphagia for solid food (as patient can take only liquid) → Symptom of carcinoma esophagus
Dysphagia more for solid than liquids occurs in :
1. carcinoma esophagus
2. Strictures and webs

748. Most common site for carcinoma stomach is:

a) Antrum

b) Fundus

c) Lesser curvature

d) Greater curvature

Correct Answer - A
Answer *is* A (Antrum):
The most common site of gastric adenocarcinoma is antrum '40% tumors are in the antrum, predominantly on the lesser curvature, 30% arise in the body and fimdus, 25% at the cardia and 5% involve the whole organ'- CSDT

749. Upper GI endoscopy is indicated in all except

a) Peptic ulceration

b) Achalasia cardia

c) Barrett's esophagus and Stricture esophagus

d) None

Correct Answer - D

Answer-D. None

Upper abdominal symptoms that futhll any of the following criteria :

- New-onset symptoms in a patient greater than 50 years of age
- Dysphagia
- Odynophagia
- Persistent or recurrent esophageal reflux despite therapy
- Persistent vomiting of unknown cause
- Active or recent upper GI bleeding
- Presumed chronic blood loss and iron deficiency anaemia if any of the following are present-

.. There is clinical suspicion of an upper GI source

2. Colonoscopy is negative

- Lession seen on upper GI tract imaging
- Acute caustic ingestion
- When sampling of tissue of fluid is indicated
- Exaluation of diarrhea in a patient suspected of having small bowel disease (eg. celiac disease)
- Intraoperative evaluation of anatomic reconstructions

750. 18 yr female with itchy erythema, swelling of toes every winter season seen due to

a) Raynauds disease

b) Raynauds phenomenon

c) Chilblains

d) Frost bite

Correct Answer - C

Answer- C. Chilblains

- Also known as pernio, It is an inflammatory skin condition presenting after exposure to cold as pruritic and/or painful erythematous to viloaceous acral lesions.
- It may be idiopathic or secondary to an underlying disease.

751. A 16 years old female patient has abdominal lump that is movable and painless, upon exploratory laparotomy a cystic lump is found arising from mesentery, diagnosis is

a) Enterocele

b) Mesenteric cyst

c) Choledochal cyst

d) Pancreatic pseudocyst

Correct Answer - B
Answer- B. Mesenteric cyst
Mesentric cyst present as

- A painless abdominal swelling
- The swelling moves freely in a plane at right angles to the attachment of the mesentry.
- Recurrent attacks of abdominal pain with or without vomiting due to obstructive symptoms.

752. Which of the following describes Richter's hernia:
September 2009

a) The strangulated loop of 'W' lies within the abdomen

b) Hernia occurring at the level of arcuae line

c) Involves only a portion of the circumference of the bowel.

d) Hernia occurring through the linea alba

Correct Answer - C
Ans. C: Involves only a portion of the circumference of the bowel. The Richter hernia occurs when only the antimesenteric border of the bowel herniates through the fascial defect. The Richter hernia involves only a portion of the circumference of the bowel.
As such, the bowel may not be obstructed, even if the hernia is incarcerated or strangulated, and the patient may not present with vomiting.
The Richter hernia can occur with any of the various abdominal hernias and is particularly dangerous, as a portion of strangulated bowel may be reduced unknowingly into the abdominal cavity, leading to perforation and peritonitis The strangulated loop of 'W' lies within the abdomen, so that local tenderness over the hernia is not marked is a feature of Maydl's hernia.

753. 60 yrs old, air in biliary tree, colicky abdominal pain hyper-peristaltic abdominal sounds diagnosis -

a) Gall stone ileus

b) Hemobilia

c) Cholangitis

d) Pneumobilia

Correct Answer - A

Answer- A. Gall stone ileus

- Presence in air in biliary tract along with sign of intestinal obstruction is characteristic of gall stone ileus.

754. Umbilical hernia in a child - indication for surgery is/are

a) Failure to disappear by 3 years

b) > 2 cm size

c) Symptomatic

d) All of the above

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

- Umbilical hernia is d/t fascial defect at the umbilicus
  Treatment
- Most hernias close spontaneously by 1 yr of age. Even larger hernias are known to disappear spontaneously by 5-6 yrs of age
- Surgery is advised for hernias
  - *persisting beyond 4-5 yrs*
  - *causing symptoms*
  - *becoming strangulated*
  - *defect exceeding 2 cm*
  - *progressively enlarging hernia after the age of 1-2 yrs.*
- Strapping is ineffective

755. Pringle maneuver to arrest hemorrhage is:

a) Clamping of portal vein

b) Clamping of hepatic artery

c) Clamping of hepatic vein

d) Clamping of hepatoduodenal ligament

Correct Answer - D
Ans is 'd' i.e. Clamping of hepatoduodenal ligament
Pringle maneuver is clamping of the hepatoduodenal ligament by atraumatic clamp across the foramen of Winslow to temporarily stop complete vascular inflow to the liver. The hepatoduodenal ligment contains the hepatic artery, portal vein and the CBD.
Although the Pringle maneuver was initially described *(by James Hogarth Pringle)* for controlling bleeding due to traumatic liver injury, it is commonly used during elective hepatic resections.

756. Cystic hygroma may be associated with: *March 2005*

a) Turner's syndrome

b) Klinefelter's syndrome

c) Down's syndrome

d) All of the above

Correct Answer - D
Ans. D: All of the above
Karyotypic abnormalities are present in 25-70% of children with Cystic Hygroma.
CH has been noted to be more common in persons with:

- Turner's syndrome
- Klinefelter's syndrome
- Down's syndrome

In addition, several nonchromosomal disorders, including Noonan syndrome, Fryns syndrome, multiple pterygium syndrome, and achondroplasia, are associated with an increased incidence of CH. Intrauterine alcohol exposure has been associated with the development of lymphangiomas. Dissolution of bone caused by either lymphangiomas or hemangiomas is termed Gorham-Stout syndrome

757. Flap commonly used in breast reconstruction is?

a) Serratus anterior

b) TRAM

c) Flap from arm

d) Delto pectoral flap

Correct Answer - B
Ans. is 'b' i.e. TRAM

758. Intraop cholangiography is done in -

a) Cholangitis

b) Periampullary carcinoma

c) High lipase level

d) Large gall stones

Correct Answer - C

Answer- C. High lipase level

1. Clinical H/o jaundice/ pancreatitis
2. Elevated bilirubin level
3. Abnormal LFT
4. Increased amylase
5. High lipase level
6. Dilated CBD on preop USG

759. Burger disease is -

a) Migratory thrombophlebitis

b) Thrombangitis obliterans

c) Superficial thrombophlebitis

d) Causalgia

Correct Answer - B

Answer- B. Thrombangitis obliterans

- Buerger's disease is also known as thrombangitis obliterans.
- Buergers disease is characterized by occlusive disease of the small and medium sized arteries.

760.

Subarachnoid hemorrhage blood is collected mostly in which part of the skull -

a) Basal cistern

b) Around Fah carebri

c) Near cerebellum

d) Tentorium

Correct Answer - A
Answer- A. Basal cistern
causative factor-

- Exclude underlying aneurysmal rupture

Typical location-

- Basal cisterns
- Clinical profile
- Headache,
- meningismus
- delayed manifestations,
- vasospasm

761. Red current jelly stools seen in -

a) Intestinal obstruction

b) Amebiasis

c) Intussuception

d) Volvulus

Correct Answer - C

Answer- C. Intussuception

- Initially the Passage of stools may be normal while later on blood mixed with mucus is evacuated - red current jelly stool
- An abdominal mass may be palpated - a sausage shaped mass, which may increase in size and firmness during the paroxysms of pain.
- There may be an associated feeling of emptiness in the right iliac fossa (sign of Dance).

762. Mondor's disease is ?

a) Thrombophlebitis of the Superficial veins of Breast

b) Carcinoma of the breast

c) Premalignant condition of the breast

d) Filariasis of the breast

Correct Answer - A

Ans is 'a' i.e., Thrombophlebitis of Superficial veins of Breast

- Mondor's disease
- is thrombophlebitis of the superficial veins of anterior chest wall and breast although it has also been seen in the arm.
- frequently involved veins are lateral thoracic vein, thoracoepigastric vein and superficial epigastric veins.
- aetiology is unknown
- also known as 'string phlebitis', it presents as a tender cord-like structure.
- The women may present with acute pain in the lateral asepct of breast or the anterior chest wall. A tender cord-like superficial thrombosed vein is formed and when the skin over the breast is stretched by raising the arm, a narrow shallow subcutaneous groove alongside the cord becomes apparent.
- rarely it may be bilateral.
- Management

  it's a benign self-limited disorder

  The differential diagnosis is lymphatic permeation from an occult carcinoma of breast

  When the diagnosis is uncertain or a mass is present near the cord, a biopsy may be done. Treatment

  - antiinflammatory drugs and warm compresses

- restricted arm movements as well as brassiere support of breast
- it usually resolves within 4 to 6 weeks. When symptoms persists or are refractory to treatment, the involved vein segment may be excised.

763. TURP fluid used -

a) NS

b) Glycine

c) Hemaccel

d) Methylcellulose

Correct Answer - B
Answer- B. Glycine

- TUR is performed with a nonelectrolytic fluid such as 1.5% glycine. Saline cannot be used because electrolytes in the irrigation fluid with dissipate the electric current used to resect the prostate.

764. Which one of the following statements is *incorrect* regarding Meckel's diverticulum?

a) Is found on the anti-mesenteric border of the small intestine

b) Consists of mucosa without a muscle coat

c) Heterotopic gastric muscosa can ulcerate and cause a brisk gastrointestinal bleed

d) A fibrous band between the apex and umbilicus can cause intestinal obstruction

Correct Answer - B
Ans. is 'b' i.e. Consists of mucosa without a muscle coat
A diverticulum consisting of mucosa without a muscle coat is a feature of *false'* or *'acquired'* diverticulum, whereas Meckel's diverticulum is a *'true'* diverticulum and consists of all the 3 layers of the gut - the *mucosa,* the *muscularis &* outer *scrosa.*

765. Duodenal ulcer, true statement is -

a) Never Malignant

b) Most-common site is IInd part

c) Common in blood group AB

d) GI bleed not seen

Correct Answer - A

Answer- A. Never Malignant

- Duodenal ulcer is more common in persons with blood group'O', i.e., containing no AB antigens with blood group'O'' i'e''containing no AB antigens.
- Bleeding is more common in duodenal ulcer than in gastric ulcer.

766. Complications of chronic duodenal ulcer are all except -

a) Bleeding

b) Stricture

c) Malignancy

d) Perforation

Correct Answer - C
Answer- C. Malignancy
1. Gastrointestinal bleeding
2. Perforation
3. Gastric outlet obstruction
4. Malignancy

767. MC abdominal organ injured in blunt trauma abdomen is -

a) Spleen

b) Liver

c) Pancreas

d) Stomach

Correct Answer - A
Answer is 'a' i.e. Spleen
"The spleen is the intra-abdominal organ most frequently injured in blunt trauma."- Sabiston I8/e
Blunt trauma : In blunt trauma the organs most commonly injured are the solid organs:

- *Spleen (MC)*
- *Liver*
- *Kidney*
- In addition to spleen, liver and kidney, extreme blunt force to the upper abdomen may fracture the Pancreas, which is susceptible to injury because of its position overlaying the rigid vertebral column.

Also know

- Deceleration injuries
- Commonly result from high speed motor vehicle accident and fall from considerable heights.
- the mechanism of injury is the *shearing of pedicled organs from their points of attachments to the retroperitoneum.*
- Pedicled organs in the abdomen are the intestines (Small and large) and the Kidney.

768. Massive bleeding per rectum in a 70 yr old patient is due to :

a) Diverticulosis

b) Carcinoma colon

c) Colitis

d) Polyps

Correct Answer - A
Answer is A (Diverticulosis)
Although anorectal disease is the most commonm cause of bleeding per rectum in the elderly, these lesions usually cause small amount of 'bright red' blood on the surface of stool and toilet tissue (small bleeds).
Diverticulosis may give rise to massive colonic bleed. The usual presentation of diverticular hemorrhage is that of brisk painless passage of a maroon coloured stool. It is the most common cause of massive bleeding per rectum in those above 55 years of aze and hence the answer here.
Angiodysplasias and diverticulosis were the most common reasons for LGIB
Common causes of Acute Lower G.I. bleeding over 55 years of age are :
1. Anorectal disease : Haemorrhoids and fissures
2. Diverticulosis
3. Angiodysplasia
4. Polyps and Cancer
5. Enterocolitis

769. Swelling in testes, investigation of choice -

a) FNAC

b) CECT

c) USG

d) MRI

Correct Answer - C

Answer- C. USG

- USG sctotum is donefor any suspecled testicular tumor.
- If a testicular mass found on USG then high inguinal orchiectomy done to remove the primary as well as know about the histologly of the tumor.

770. The commonest organism seen in peritonitis is -

a) Escherichia coli

b) Clostridium welchii

c) Staphylococci

d) Klebsiella

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

771. Not true about rodent ulcer -

a) Radiosensitive

b) Lymphnode not involved

c) Facial lesion

d) Blood spread is rare

Correct Answer - A

Answer- A. Radiosensitive

- Basal cell carcinoma is moderately radiosensitive.
- Basal cell ca usually spreads by local invasion
- Lymphatic spread is not seen
- basal cell carcinomas are seen in the face.

772. Severe acute malnutrition, arm circumference is less than (in cm) ?

a) 12.5

b) 13.5

c) 12

d) 11.5

Correct Answer - D
Ans. is 'd' i.e., 11.5

- Weight-for-height -3 Z-score, or
- Mid-upper-arcccfm circumference <115 mm, or
- Presence of bilateral oedema

773. All of these are criteria for severe acute malnutrition in a 6-month-old child except:

a) Mid-upper arm circumference

b) Symmetrical edema

c) Weight for height

d) Height for age

Correct Answer - D

Ans: D. Height for age

- Height for age is not a criterion for severe acute malnutrition in a 6-month old child.

Severe acute malnutrition (SAM):

-]Among children 6-59 months of age is defined by World Health Organization (WHO) and UNICEF as any of the following:
- Weight-for-height below –3 standard deviation (SD or Z scores) of the median WI-10 growth reference
- Visible severe wastinge
- Presence of bipedal edema
- Mid-upper arm circumference below 11.5 cm
- This classification is used to identify children at high risk of death.

774. Object permanence milestone develop at?

a) 6 months

b) 9 months

c) 12 months

d) 15 months

Correct Answer - B
Ans. is 'b' i.e., 9 month

775. Diplegia Vs quadriplegia-False is

a) Diplegia is weakness in upper arm more than leg

b) Quadriplegia is most severe form of cerebral palsy

c) Quadriplegia is usually association with MR & seizure

d) All are corract

Correct Answer - A
Ans. is 'a' i.e., Diplegia is weakness in upper arm more than leg

776. Cerebral palsy in which upper limb is less affected than lower limb

a) Spastic diplegia

b) Spastic paraplegia

c) Spastic Quadriplegia

d) Spastic hemiplegia

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

777. Most important risk factor of recurrence of febrile seizure is ?

a) Age of onset < 2 years

b) Family history

c) Seizure at time of fever peak

d) Long prolonged fever prior to seizureBaby

Correct Answer - B

Ans. is 'b' i.e., Family history

Febrile convulsion :?

- Commonest provoked seizure
- Between 6 months to 5 year
- Neurologically normal child
- Occurs when temp rise abruptly

Simple benign febrile convulsion

- Fits occur within 24 hour of onset of fever.
- Duration less than 10 min.
- Usually single per febrile episode
- Generalised type of convulsion

Atypical febrile seizures

- Presence of family history of epilepsy
- Neurodevelopmental retardation
- Focal neurological deficit.
- Approximately 30-50% of children have recurrent seizures

Factors associated with increased recurrence risk include

1. Age <12 mo
2. Lower temperature before seizure onset
3. A positive family history of febrile seizures, and
4. Complex seiz*ures*

778. A child is suffering from dry skin and is mentally retarded-diagnosis ?

a) Vit A deficiency

b) Crebral palsy

c) Hypothyroidism

d) All above

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

779. Drug for long term treatment of partial seizure is?

a) Valproate

b) Carbamazepine

c) Eptoin

d) Phenobarbitone

Correct Answer - B

Ans. is 'b' i.e., Carbamazepine

- *C*arbamazepine is effective drug for long term treatment of GTcs & partial seizure advantage being furious side effect.
- Does of CBZ is 10-30 mg/kg/day in 2-3 divided doses.

Phenobarbitone :

- Used in GTCS type below 1 year of age
- Because of development of hyperkinesia & learing disabilities after 1st year of life should be avoided prolonge period.

Eption :

- Maintain prolongs seizure effect
- Very cheap
- Used in GTCS & partial seizure.

Valproate :

- Useful in GTCS, absence, myoclonic, partial and akinetic seizure.

780. Not a feature of TOF ?

a) Boot shaped heart

b) Patent foramen ovale

c) VSD

d) RVH

Correct Answer - B
Ans. is 'b' i.e**.,** Patent foramen ovate

781. Least common valve involved in rheumatic fever?

a) Aortic valve

b) Tricuspid valve

c) Mitral valve

d) Pulmonary valve

Correct Answer - D
Ans. is 'd' i.e., Pulmonary valve
Endocarditis in rneumatic fever
1. Mitral valve involved almost all the cases of Acute Rheumatic Fever.
2. Almost 25% of MR is asociated with aortic regargitation.
3. Tricuspid regurgitation is seen in 10-30% cases.
4. Pulmonary valve involvement is never seen.

782. Which of the following is not example of Pseudopuberty?

a) Tumor of hypothalamus

b) Ovarian tumor

c) Tumor of adrenal gland

d) All of above

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

783. 2 weeks old baby having scrotal pigmentation along with hyponatremia, gypoglycemia and hyperkalemia enzyme deficient?

a) 11 beta hydroxylase

b) 21 a- hydroxylase

c) 3- Beta hydroxylase dehydrogenase

d) 17- hydroxylase deficiency

Correct Answer - B
Ans. is 'b' i.e., 21 a- hydroxylase

784. Congenital adrenal hyperplasia shows which clinical features?

a) Female pseudo hermaphrodite (pseudohermaph roditism)

b) Hypertinsion

c) Electrolyte imbalance

d) All of above

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

785. Laron dwarfism is caused by ?

a) Deficiency of GH

b) GH receptor defect

c) Deficiency of thyroxin

d) Thyroxin receptor defect

Correct Answer - B
Ans. is 'b' i.e., GH receptor defect
Laron syndrome

- Dwarf
- Development of end organ resistance to *growth hormone.*

786. Laurence moon biedle syndrome- Associated with?

a) Polydactyly

b) Mental retardation

c) Retinitis pigmentosa

d) All of above

Correct Answer - D
Ans. is 'd' i.e., All of above
Laurence-Moon-Biedl syndrome is characterized by:
Obesity Polydactyly
Mental retardation Hypogonadotropic hypogonadism
Retinitis pigmentosa

787. Child of 6 weeks with Hemoglobin of 10 gm% pale on examination, diagnosis is ?

a) Physiological anemia

b) Pathological anemia

c) Thalassemia

d) Iron dificiency anemia

Correct Answer - A

Ans. is 'a' i.e., Physiological anemia

Physiologic Anemia of Infancy

1. Hemoglobin drops to low point at age 6 to 8 weeks
2. Erythropoietin nadir drops Hemoglobin
3. Term Infants: Hemoglobin drops to 9-11 g/dl
4. Preterm Infants: Hemoglobin drops to 7-9 g/dl
5. No work-up or treatment unless Hemoglobin lower than expected

Other point ?

Hemoglobin g/dl cut off- . (WHO/UNU-1996)

- *6mo-5yr <11.0; 5-11 yr - 11.5;*
- *12-13 yr -12.0g/d1; Men - 13.0*
- *Women Non-pregnant - 12.0;Pregnant - 11.0*

788. Child with seizure plus hyponatremia treatment of choice ?

a) 0.9% NaCl

b) i/2 0.45% NaC1

c) Dextrose + NaC1

d) 3% NaC1

Correct Answer - D
Ans. is 'd ' i.e., 3% NaC1
Hyponatremia

- (Serum sodium < 130 meq/L).
- (Symptomatic when sodium < 120 meq/L).
- Fluid shift from ECF to neuronal cell.
- Results in cerebral edema which causes headache, drowsiness, seizure, coma.

Treatment:?

1. In low ECF volume & asymptomatic-give ORS/Normal saline.
2. In complicated like seizure-give 3-5 ml/kg of 3% hypertonic saline to raise Na by 5 meq/Lit.
3. Never do rapid correction (> 12 meq/Lit in 24 hour) can cause Central pontine myelinolysis (CPM).

789. 5 year old child with watery diarrhea for 7 days, on examination, weight = 10 kg, hanging skin folds with normal skin pinch, Sodium in ORS should be -

a) 45 meq/Lit

b) 60 meq/Lit

c) 75 meq/Lit

d) 90 meq/Lit

Correct Answer - C
Ans. is 'c' i.e., 75 meq/Lit

790. Girl aged 7 yrs, weignt 25 kg. I.V. fluid dose for maintainance?

a) 14 litres

b) 15 litres

c) 16 litres

d) 17 litres

Correct Answer - C
Ans. is 'c' i.e., 16 litre

791. 14 KG child severe diarrhea fluid for 6 hours ?

a) 1400 ml

b) 1500 ml.

c) 1550 ml.

d) 1600 ml.

Correct Answer - C
Ans. is 'c' i.e., 1550 ml

792. 4 year old girl wt. 12kg with diarrrhoea, skin pinch goes back very slowly & she is not able to drink- false is

a) Develop severe dehydration

b) Require plan C treatment

c) Fluid of choice-ORS

d) Require hospitalition

Correct Answer - C

Ans. is 'c' i.e., Fluid of choice-ORS

Two of following sign suggest severe dehydration :

- Lethargic or uncouscious
- Sunken eye
- Not able to drink or drinking poorly
- Skin pinch goes back very slowly

So above girl is suftering from severe dehydration treatmen- give fluid for sever dehydration (plan C)

- Urgent IV fluid infection
- Require hospitalisation.

793. Duchenne Muscular Dystrophy is a disease of:

a) Neuromuscular junction

b) Sarcolemmal proteins

c) Muscle contractile proteins

d) Disuse atrophy due to muscle weakness

Correct Answer - B

Answer is B (Sarcolemmal protein) :

Duchenne muscular dystrophy is caused kr *a mutation in the gene responsible few producing dystrophin.*

Dystrophin is `subsarcolemmal protein' (Nelson) localized to the inner surface of the sarcolemma of the muscle fibre. Harrison 17th/2683

Dystrophin is part of Dystrophin – Glycoprotein sarcolemmal complex and this protein deficiency leads to secondary loss of sarcoglycans and dystroglycans resulting in weakness of sarcolemma, causing membrane tears and muscle fibre necrosis

Duchenne muscular dystrophy: Review (pseudohypertrophic muscular dystrophy)

- Duchenne muscular dystrophy is the most common hereditary neuromuscular disease affecting all races and ethnic groups.
- Inheritance : X linked recessive
- Presentation occurs between ages 3 and 5 [disorder does not present at birth or in infancy^{Q}]

Clinical manifestations:

- Gower's sign is positive°
- Pseudohypertrophy of calf is seen° (muscle is replaced by fat & connective tissue)

- Loss of muscle strength is progressive. *2*
- Proximal muscles and neck flexors are involved more. *2*
- Leg involvement is more severe than arm involvement.
- Contractures of heel cords and iliotibial band occurs (by age of 6 years)
- Progressive scoliosis develops.

Complications:

Chest deformity[Q] (scoliosis) *:* Impairs pulmonary function°

By age of 16 and 18 years patients are predisposed to serious pulmonary fatal infections.

Cardiac:

Cardiomyopathy and CHF may be seen

Cardiac cause of death is uncommon

Intellectual impairment :

is common° (IQ is one SD below the mean)

Remember:

Onset [2]	*Before age of 5 2*
Confined to wheel chair	*After age of 12 e*
Inability to walk	
Respiratory failure	*In second or third decade (after 16-18 years)2*

Laboratory diagnosis:

- *Serum creatinephosphokinase (CK)[Q] :* elevated (20-100 times)
- *EMG :* features of myopathy

Muscle biopsy[Q] :

- Definitive diagnosis established on basis of dystrophin deficiency in biopsied muscle tissue -

Groups of necrotic and regenerating muscle fibres are seen.

Treatment:

- Glucocorticoids (Prednisolone) have been tried.
- Significant alteration in the progression of disease has been seen with **prednisolone.**

794. Tuberculosis in children true is?

a) Commonly sputum negative

b) Incidence < 5% of all TB casesv

c) Clinically child does not show sign of florid TB.

d) All of above

Correct Answer - D
Ans. is 'd' i.e., All of above
Pediatric tuberculosis :

- Prevelance of childhood TB is between I 0 to 20% of all TB cases and between 5 to I 5% overall
- Frequency of childhood Tb depends upon: number of infectious cases, closeness of contacts, age of child when exposed, age structure of population
- Children are rarely sputum positive and non invective to others
- Childhood tuberculosis is rarely contagious because; of low bacterial load and rarity of cavitating disease
- Childhood TB is common due to failure of control in adult and risk of infection to child depends upon extent of exposure to droplet nuclei.
- An infant with sputum positive mother has high chances of developing TB
- Risk of developing disease is greatest shortly after infection
- Children below 5 years of age are most susceptible because of poor immune system, therefore most common in age group of 1-4 years
- Young age is a risk factor for dissemination to other body parts o Children (especially below 5 years of age) usually cannot expectorate sputum to allow a definite diagnosis
- As there are no specific symptoms and findings on clinical examination in children, the diagnosis is usually made after taking

history of close contact with an adult with TB, failure to thrive, and persistent cough > 3weeks if the child has received broad specrum antibiotics.

- Tuberculin test may have supportive evidence
- Chest X ray is a common investigation, especially in military TB
- A Symptomatic child with tuberculin positive 10 mm, is considered as case regardless of BCG administration.

795. Isoniazid child dose in DOTS regimene (RNTCP)-

a) 10-15 mg/kg/dg

b) 15-20 mg/kg/dg

c) 20-25 mg/kg/dg

d) 5-10 mg/kg/dg

Correct Answer - A
Ans. is 'a' i.e., 10 -15 mg/kg/dg

796. 18 months old child cellulitis of leg $Sp0_2$ 88%, no prior history of hospitalization or illness most probable organism is?

a) MRSA

b) Streptococcus pneumonia

c) Streptococcal pyogenes

d) All of above

Correct Answer - C
Ans. is 'c' i.e., Streptococcal pyogenes

- Cellulitis is characterized by infection and inflammation of loose connective tissue, with limited involvement of the dermis and relative sparing of the epidermis.
- Streptococcus pyogenes and S. aureus are the most common etiologic agents.
- Children with relapsed nephrotic syndrome may develop cellulitis due to Escherichia coli.
- Cellulitis presents clinically as an area of edema, warmth, erythema, and tenderness. The lateral margins tend to be indistinct because the process is deep in the skin, primarily involving the subcutaneous tissues in addition to the dermis. Application of pressure may produce pitting. Although distinction cannot be made with certainty in any particular patient, cellulitis as a result of S. aureus tends to be more localized and may suppurate, whereas infections due to S. pyogenes (group A streptococcus) tend to spread more rapidly and may be associated with lymphangitis.
- MRSA is usually seen in hospitalised child.

797. 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

798. Child with proteinuria, generalised edema. With hypoproteinemia & hyperlipidemia-M.C. cause is?

a) Minimal change nephrotic syndrome

b) IgA nephropathy

c) Mesangial glomerulonephritis

d) FSGN

Correct Answer - A
Ans. is 'a' i.e., Minimal change N.S.
Nephrotic syndrome characterised by :?

- Massive proteinuria = (more than 1 gm/m2/day).
- Hypoalbuminemia (serum albumin below 2.5 g//dl).
- Edema
- Hyperlipidemia often associated.

Resultant fall in plasma oncotic pressure leads in edema.

- Stimulation of Renin - Angiotensin system causes sodium & water retention.
- More than 90% of childhood N.S. is primary.
- Most common cause of primary N.S. is minimal change.
- In electron microscopy, Histopathology show loss of podocyl and loss of negatively charged protein leads to selective proteinuria (albumineria

799. 18 month old child sign of severe pneumonia is

a) Chest indrawing

b) Stridor in calm child

c) Inability to drink

d) All of above

Correct Answer - D
Ans. is 'd' i.e., All of above
Severe pneumonia or very severe disease :?
1. Chest indrowing 'or'
2. Stridor in calm child 'or'
3. Any general danger sign
4. H/0 convulsion
5. Inability to drink or breast feed
6. Uncousciousness or letharginess
7. Child vomiting everything.

Pneumonia :?
- Fast breathing-defined as
- Upto 2 month = 60 breath/minute
- 2 month-12 month = 50 breath/minute
- 12 months to 5 year = 40 breath/minute

800. 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.

801. Male downs syndrome genotype?

a) 46 XY

b) 47 XY

c) 45 XY

d) 47 XXY

Correct Answer - B
Ans. is 'b' i.e., 47 XY
In 95% of cases of Down syndrome-trisomy of 21:?

- Extra chromosome is of maternal in origin.
- 1% have mosaic with some all have 46 chromosome.
  4% have robertsonian translocation.
- t (13 : 21)
- t (14 : 21) at (15 : 21)
- Very rarely long arm of chromosome 21 is triplicate (Partial trisomy).

802. Pulmonary hypoplasia with uropathy diagnosis is?

a) Potter syndrome

b) patau syndrome

c) Perthe disease

d) All of the above

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

- Bilateral renal agenesis is incompatible with extrauterine life and is termed Potter syndrome.
- Death occurs shortly after birth from pulmonary hypoplasia.
- The newborn has a characteristic facial appearance, termed *Potter* facies. The eyes are widely separated with epicanthic folds, the ears are low set, the nose is broad and compressed flat, the chin is receding, and there are limb anomalies.
- Bilateral renal agenesis should be suspected when maternal ultrasonography demonstrates oligohydramnios, nonvisualization of the bladder, and absent kidneys.

803. Commonest shoulder dislocation

a) Preglenoid

b) Subcoracoid

c) Posterior

d) Subclavicular

Correct Answer - A
Ans. is 'a' i.e., Preglenoid
Anterior dislocation of the shoulder is the *most common type of shoulder dislocation.* Head of the humerus comes out of the glenoid cavity and lies anteriorly. Anterior dislocation of shoulder could be : -

i. Preglenoid It is the *most common type* of anterior dislocation and head lies in front of glenoid.
i. Subcoracoid :- The head lies below the coracoid process.
i. Subclavicular (infraclavicular) :- The head lies below the clavicle.
v. Intrathoracic :- It is *very rare.*

804. Treatment of shaft femur fracture in a 3 years old boy?

a) Gallow's traction

b) Russel traction

c) Intramedullary nailing

d) Plating

Correct Answer - B
Ans. is 'b' i.e., Russel traction
In children, conservative treatment is given by:-
i) 0-2 yeas:- Plaster spica or modified Bryant or Gallov/s traction or pavllic harness (< 6 month of age).
ii) 2-10 years:- Split Russel traction.
iii) 10-15 years:- 90-90' femoral skeletal traction

805. Golden hour of fracture femur is?

a) 1 hr after injury

b) 1 hr prior to injury

c) 1 hr after reaching the hospital

d) 1 hr after surgical procedure

Correct Answer - A
Ans. is 'a' i.e., 1 hr after injury
Golden Hour

- It is the first hour from the time of trauma.
- It is the most critical for life and for the limb viability following fracture femur.
- Best prognosis is for the patients with fracture femur are for those who reach the OR in the golden hour.
- The emergency medical team should not take more than 10 minutes from the time of trauma in patients with fracture femur to decide and start shifting the patient. This is described as "Platinum Ten".
- Thus,
- Golden hour -1 hour from the time of injury. Platinum hour - ten minutes from the time of injury.

806. Dinner fork deformity is seen in?

a) Colle's fracture

b) March fracture

c) Lateral condyle fracture

d) Supracondylar fracture

Correct Answer - A

Ans. is 'a' i.e., Colle's fracture

<u>Complications of colle's fracture</u>

- Complications in colle's fracture are high (50-60%). Following complications may occur

1) *Stiffness of fingers and joints*

- *Stiffness of finger, wrist and shoulder is the most common avoidable complication of colle's fracture.*
- This occurs due to lack of exercise. Therefore, patient should be encouraged for active exercise of finger and shoulder.

2) *Malunion*

- It is the *second most common complication*
- It results in *dinner fork deformity*

3) Sudek's osteodystrophy (reflex sympathetic dystrophy)

4) Carpal tunnel syndrome:

- Median nerve may get compressed in carpal tunnel

5) Carpal instability

6) Rupture of the extensor pollicis longus tendon

7) Frozen shoulder syndrome

- This is a troublesome complication which develops due to unnecessory voluntary shoulder immobilization by the patient on the affected side for fear of fracture displacement.

8)TFCC injury

9) Non-union is very rare

807. Undertaker's fracture is seen at the level of cervical vertebra:
NEET 15

a) C1-C2

b) C3-C4

c) C5-C6

d) C6-C7

Correct Answer - D
Ans. C6-C7
It is caused clue to the head falling backwards forcibly after death, which tears open one of the intervertebral discs, usually around C6 and C7.
. Due to the prolapse of the cervical intervertebral disc, there is increased tendency of subluxation of the lower cervical spine.

808. 34 years old male with femur shaft fracturedevelops petechiae over chest 4 days after the injury. What is the most probable diagnosis?

a) Fat embolism

b) Air embolism

c) Thrombocytopenia

d) Hypocomplimentemia

Correct Answer - A

Ans. is 'a' i.e., Fat embolism

Fat embolism means circulation of fat globule away from its site

- When fat embolism causes symptoms it is called fat embolism syn
- Fracture's of bone is the most common cause of fat embolism.
- Amongst the long bones, *femur fracture is associated with fat embolism most commonly.*
- *Multiple fractures increase the risk of fat embolism.*

Clinical manifestations of fat embolism

- Clinical features are evident *within 1-3 days.* About 25 percent of patients develop symptoms within 12 hours and 75 percent within 36 hours. Occasionally the onset may be delayed for several days and some patients may go unnoticed initially. *Early warning signs are a slight rise in temperature (pyrexia) and tachycardia.*
- The classical triad of fat embolism syndrome is :-

i. *Respiratory symptoms :* Dyspnea, tachypnea, cyanosis, ARDS, low PO_2.

i. *Neurological symptoms :* Confusion, disorientation, restlessness, irritation, delirium, convulsion, coma.

i. *Petechial rash :* In axilla, neck, periumblical area, conjunctiva of lower lid, retina, front & beck of chest, shoulder.

809. Trabeaculae are aligned in which stage of fracture neck femure -

a) Stage 1

b) Stage 2

c) Stage 3

d) Stage 4

Correct Answer - B
Ans. is 'b' i.e., Stage - 2
The degree of displacement, in Garden's classification, is judged from change in the direction of medial trabecular stream of the neck, in relation to the bony trabeculae in the weight bearing part of the head and in the corresponding part of the acetabulum.

i. *Stage 1 :* There is an obtuse angle laterally at the trabecular stream.
i. *Stage 2 :* Trebeculae between head and neck are broken but they are in alignment with each other and with trabeculae in the acetabulum.
i. *Stage 3 :* All three trabeulae are out of alignment.
Stage 4 : Acetabular and head trabeculae are in alignment but head and neck trabeculae are not aligned.

810. Deforming force on proximal fragment in Benett's fracture ?

a) APL

b) APB

c) EPL

d) EPB

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

811. Which of the following is true about skeletal tuberculosis in children?

a) Most common sites are hip (40%), Spine (20%), Knee (10%)

b) Most common site is upper limb

c) Dorsolumbar spine is most commonly affected

d) Progression to kyphosis deformity is least with lumbar lesions

Correct Answer - D

Ans. is 'd' i.e., Progression to kyphosis deformity is least with lumbar lesions

Tuberculosis in children

Extra-pulmonary tuberculosis accounts for 5 - 10% of total cases of tuberculosis in children o About 1/3 of children with tuberculosis have extrapulmonary tuberculosis

The most common mode of presentation in a child less than 2 years is development of a gibbusof the dorsal area. o Under the age of four, backache in children should be regarded as pathological unless and until proved otherwise. o MRI cannot differentiate between pyogenic or tuberculous infection.

Vertebral tuberculosis is the most common form of skeletal tuberculosis in children, accounting for 50% of all cases in reported series. Approximate distribution in the skeleton are spine (50%), hip (20%), knee (10%), ankle and foot (5%), hand and wrist (3%), elbow (2%), shoulder (1 %), bursal sheaths and other bones (8%)

The thoracic spine is most commonly affected; the radiological features include bone marrow oedema and enhancement, posterior element involvement, canal stenosis, and spinal cord or nerve root compression. Inter-vertebral disc enhancement, vertebral collapse and kyphosis deformity are particularly suggestive of tuberculosis.

Those with dorsal lesions have maximal deformity at the time of presentation, partly due to the additive effect of the normal thoracic kyphosis. However, the rib cage offers protection against additional collapse. Patients with dorsolumbar lesions have the worst prognosis as they tend to collapse more during the active phase of the disease and even more during the growth period. Those with lumbar lesions have the best prognosis with the least deformity at presentation, a lesser increase during the active phase, and also a tendency for substantial decrease during the growth period.

812. Earliest sign in X-ray in TB spine is:
March 2011

a) Paravertebral shadow

b) Narrowing of disc space

c) Gibbus

d) Straightening of spinal curves

Correct Answer - B
Ans. B: Narrowing of disc space
Reduction of the disc space is the earliest sign in the commoner, paradiscal type of tuberculosis
Skeletal TB:

- Earliest symptom of spinal TB: Back pain
- Earliest sign in Pott's disease: Narrowing of disc space
- MC vertebrae to be involved in TB spine: T9-T12
- TB spine starts in: Vertebral body (paradiscal)
- Spina ventosa: TB dactylitis

813. Investigation of choice for spinal TB

a) X-ray

b) CT Scan

c) MRI

d) PET Scan

Correct Answer - C

Answer- C. MRI

- Best view for Cl-C2 vertebrae & junction → open mouth odontoid (pegs) view.
- Investigation of choice for spinal tuberculosis → MRI
- Investigation of choice for traumatic paraplagia → MRI

814. Commonest site of bone involvement in hematogenous osteomyelitis:

a) Metaphysis

b) Diaphysis

c) Epiphysis

d) Point of entry of the nutrient artery

Correct Answer - A

Metaphysis *[Ref Maheshwari 3/e p157; Apley's 9/e p30 (8/e p27)]Repeat from May 09*

- Acute osteomyelitis is almost invariably a disease of *children.* When adults are affected it may be because their resistance is lowered by debility, disease or drugs.
- Acute osteomyelitis may result from hematogenous spread of the infecting organism, or may be infected secondarily from the spread of a contiguous area of infection, or direct inoculation of bacteria in the bone (open fractures, nail punctures of the foot).
- Hematogenous spread is the commonest means of production of osteomyelitis.
- Commonest site is metaphysic. This is because of the peculiar arrangement of the blood vessels in that area, which leads *to* relative vascular stasis, favouring bacterial colonization.

[The nutrient artery of the long bone divides within the medullary canal of the bone, ending in small arterioles that ascend toward the growth plate. Just beneath the growth plate (physis), these arterioles twist back away from the physis and empty into venous lakes that drain into the medullary cavity. This peculiar hair-pin loop arrangement leads to relative vascular stasis and predisposes the nzetaphysis for osteomyelitis.]

- Commonest site: Lower femoral metaphyses > Upper tibial, upper femoral, upper humeral metaphyses.
- Acute hematogenous osteomyelitis behaves differently in neonates from the way it does in children. Because blood vessels cross the growth plate in neonates and infants younger than age 18 months, the bone infection that develops in that age group will likely cross the physis; however, in older children, acute infections rarely cross the growth plate.
- In adults, hematogenous infection is more common in the vertebrae than in the long bones.

815. Chronic discharging sinus with bone particle is seen in?

a) Chronic osteomyelitis

b) Acute osteomyelitis

c) Subacute osteomyelitis

d) Garre's osteomyelitis

Correct Answer - A

Ans. is 'a' i.e., Chronic osteomyelitis

<u>Clinical features of chronic osteomyelitis</u>

- The commonest presenting symptom *is a chronic discharging sinus. a history of bone piece discharge from the chronic sinus is considered diagnostic of chronic osteomyelitis.*
- Pain is minimal or absent.
- Generalized symptoms of acute osteomyelitis are not present except in acute excacerbations.
- On examination there is *irregular thickening of bone.Mi* ld tenderness may be seen in deep palpation. Adjacent joint may be stiff.

<u>Radiological features</u>

Following are radiological features : -

i. Thickening and irregularity of the cortices.
i. Patchy sclerosis
i. Bone cavity : This is seen as an area of rarefaction surrounded by sclerosis.
v. Sequestrum(Manipal 97) : This appears denser than the surrounding normal bone because the decalcification which occurs in normal bone, does not occur in dead bone. Granulation tissue surrounding the sequestrum gives rise to a radiolucent zone around it. A

sequestrum may be visible in soft tissue.

/. Involucrum and cloacae may be visible.

816. Clubfoot features are all except?

a) Forefoot adduction

b) Eversion at sub-talar joint

c) Forefoot adduction at mid-tarsal joint

d) Plantar flexion of ankle

Correct Answer - B

Ans. is 'b' i.e., Eversion at sub-talar joint

CTEV is the commonest and most important congenital deformity of the foot.

The deformity consists of following elements :-

i. *Equinus,* i.e. Plantar flexion at ankle joint (tibiotalar joint)
i. *Inversion of foot* at subtalar joint (talocalcaneal joint)
i. *Forefoot adduction,* at mid-tarsal joints, especially at talo-navicular joint.
v. Sometimes *forefoot cavus,* i.e. excessive arching of the foot at mid-tarsal joints.

817. Treatment of partially corrected CTEV with cavus deformity is ?

a) Posteromedial release

b) Lateral release

c) Plantar release

d) Medial release

Correct Answer - C
Ans. is 'c' i.e., Plantar release
Limited soft tissue release is the treatment of choice in cases of partially corrected CTEV with residual deformities.
The following methods are described :

i. Residual equinus: posterior release.
i. Adduction alone: medial release.
i. Cavus alone: plantar release.

818. Perthes affects age group

a) < 4 yrs

b) 4 - 8 yrs

c) 10 - 25 yrs

d) > 25 yrs

Correct Answer - B

Ans. B. 4 - 8 yrs

- Perthe's disease is also known as osteochondritis deformans juvenilis or Coxa plana or Pseudocoxalgia.
- Perthe's disease is an osteochondritis of the epiphysis of the femoral head (capital femoral epiphysis).
- The disease occurs commonly in males in the age group of 5-10 years.

819. Perthes disease etiology is?

a) Pyogenic

b) Tubercular

c) Traumatic

d) Unknown

Correct Answer - D

Ans. is 'd' i.e., Unknown

PERTHE'S DISEASE (LEGG-CALVE PERTHE'S DISEASE)

- Perthe's disease is also known as *osteochondritis deformans juvenilis or Coxa piano or Pseudocoxalgia.*
- Perthe's disease is an *osteochondritis of the epiphysis of the femoral head (capital femoral epiphysis).* In the disease, the femoral head becomes partly or wholly avascular and deformed. The disease occurs commonly in *males* in the *age group of 5-10 years.*

Etiology of Perthe's disease

- Perthe's disease is the *most common form of osteochondroses* (osteochondroses are characterized by avascular necrosis (AVN) and defective endochondral ossification of primary or secondary ossification centers).
- The etiology remains unknown, but is currently accepted that the disorder is caused by an *interruption of the blood supply to the capital femoral epiphysis, causing avascular necrosis.*

Clinical features of Perthes disease

- Perthes disease is common in *male of age group 5-10 years.*
- *Pain* in the hip, often radiating to knee.
- *Limp* (antalgic limp).
- Limitation of movement :- *Abduction, internal rotation and extension are limited,* therefore there is adduction, external rotation, and

flexion deformity.
- Shortening of limb.
- Positive trendelenburg test.
- During the disease process, bone age is 1-3 years lower than the normal. After healing, bone age returns to normal.

<u>Radiological investigations for Perthe's disease</u>

- Following radiological investigations are used :

1) X-ray hip

- Findings are :-

i. *Increased medial joint space*
i. *Widening of femoral neck*
i. *Lateral extrusion (lateral subluxation)*
*. *Metaphyseal cysts and rarefaction of metaphysis*
*. *Horizontal physis with speckled calcification lateral to it*
i. *Fragmentation of femoral head with increased density (irregular densities in the epiphysis)*

2) Bone scan

- May show a decrease uptake by femoral head.

3) MRI

- It is the *investigation of choice* as it can diagnose Perthes disease in early stages when X-ray is normal.
- MRI tells about :-

i. Extent of area involved
i. Sphericity of the head
i. Subluxation of the head

- Thus MRI helps better in planning for management.

820. Congenital dislocation of hip in older child most common sign appreciated is?

a) Barlow test

b) Ortolani test

c) Painful ROM

d) Limited abduction of Lower Limb

Correct Answer - D

Ans. is 'd' i.e., Limited abduction of Lower Limb

Clinical features of congenital dislocation of hip

lDevelopmental dysplasia of hip

- Girls are affected six times as often as boys. In one third of cases, bilateral affection occurs. Unless it is specially looked for in infancy - as it always should be - abnormality may not be noticed until the child begins to walk.
- The clinical findings in older child are :-

i. *Limitation of abductionand external rotation.*

i. Limb is in *adduction, internal rotation & flexion.*

i. Asymmetrical thigh fold

. Higher buttock fold on the affected side.

. *Galeazzi's sign :* The level of the knees are compared in a child lying with hip flexed to 70° and knees flexed. There is a lowering of the knee on the affected side

i. *Ortolani's test* may be positive.

i. *Trendelenbug's test is positive :* This test is performed in an older child. The child is asked to stand on the affected side. The opposite ASIS (that of the normal side) dips down .

i. The limb is short and slightly externally rotated. There is lordosis of the lumbar spine.

c. *Telescopypositive :* In a case of a dislocated hip, it will be possible to produce an up and down piston- like movement at the hip. This can be appreciated by feeling the movement of the greater trochanter under the fingers.
c. A child with unilateral dislocation exhibits a typical gait in which the body lurches to the affected side as the child bears weight on it *(Trendelenburg's gait).* In a child with bilateral dislocation, there is alternate lurching on both side *(waddling gait).*
i. There is compensatory genu valgum as patient tries to keep the foot out (to compensate adduction at hip).

821. Patients with bilateral CDH walk with the following gait?

a) Waddling

b) Stumbling

c) Knock knee

d) Antalgic

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

- It is also called as duck walk gait.
- It is a wide base gait with increased lumbar lordosis, the patient sways to the same side after putting weight on the limb.
- It is seen commonly in pregnancy, bilateral CDH, osteomalacia and myopathies.

822. Tinel sign is seen in ?

a) Nerve degeneration

b) Nerve regeneration

c) Muscle degeneration

d) Muscle regeneration

Correct Answer - B

Ans. is 'b' i.e., Nerve regeneration

<u>Pathological changes after nerve injury</u>

- After nerve injury, nerve first degenerates and then tries to regenerate.

Nerve degeneration

- The part of the neurone distal to the point of injury undergoes *secondary or Wallerian degeneration;* the proximal part undergoes primary or retrograde degeneration upto a single node.

Nerve regeneration

- As regeneration begins, the axonal stump from the proximal segment begins to grow distally. If the endoneural tube with its contained Schwann cells is intact, the axonal sprout may readily pass along its primary course and reinnervate the end-organ. *The rate of recovery of axon is 1 mm per day.* The muscles nearest to the site of injury recovers first, followed by others as the nerve reinnervates muscles from proximal to distal, the so-called *motor march.*
- When the skin over the nerve is percussed gently from distal to proximal, the patient gets a tingling sensation if the nerve is recovering. This is called Tinel's sign and is a sign of recovery.

823. `Ulnar paradox' is seen in ?

a) High ulnar lesion

b) Low ulnar lesion

c) Triple nerve disease

d) All

Correct Answer - A
Ans. is 'a' i.e., High ulnar lesion
Ulnar paradox is due to --> Paralysis of medial half of FDP and ulnar claw hand does not occur in high ulnar nerve palsy.
o Among the all nerves, maximum disability of hand occurs in ulnar nerve injury as ulnar nerve supplies most of the intrinsic muscles of hand.

824. Nerve involved in Arcade of Frohse ?

a) Median

b) Ulnar

c) PIN

d) Radial

Correct Answer - C
Ans. is 'c' i.e., PIN
Arcade of Frohse (supinator arch) is fibrous between two heads of supinator. Posterior interosseous nerve passes beneath it.

825. Trendelenberg test is positive in palsy of

a) Gluteus maximus

b) Gluteus medius

c) Rectus femoris

d) Vastus medialis

Correct Answer - B

Ans. is 'b' i.e., Gluteus medius

<u>Trendelenberg test</u> :

- It tests the stability of the hip and particularly of the abductor mechanism of the limb on which the patient is standing.
- Principle of the test :

1. *Normally when one leg is raised from the ground the pelvis tilts upwaras on that side, through the action of the hip abductors of the standing limb.*
2. *If the abductors are inefficient they are unable to sustain the pelvis against the body weight and it tilts downwards instead of rising up on the side of the lifted leg.*
3. Note that the test is performed with the patients standing on the affected leg.

- Abductor mechanism :
- It can be compared with the lever, with the body weight being trying to tilt the pelvis down; the hip joint being the fulcrum and the abductor muscles being the power acting throught the lever arm (from the head of the femur to attachment of the abductor muscles on the greater trochanter - the neck of the femur).

Causes of positive trendelenberg test :

- *Any failure of abductor mechanism causes dipping of the pelvic (ASIS) on the normal side.*

- There are three fundamental causes :
  1) *Paralysis of the abductor muscles (Supplies gluteus medius & minimus)*
- *eg. Polio.*
- *Paralysis of superior gluteral nerve*
  2) *Marked approximation of the insertion of the abductor muscles to their origin by upward displacement of the greater trochanter ; so that the muscles are slack.*
- *eg. Severe coxa vara,*
- *dislocation of hip*
  3) *Absence of stable fulcrum & lever arm about which the abductor muscles can act*
- *Neck femur fracture*
- *Dislocation of hip,*
- *Destructruction of head as in Perthe's diseases.*

826. Pulp space infection painful due to?

a) Dense fibrous septae

b) Small phalynx

c) Rich blood supply

d) Rich nerve supply

Correct Answer - A

Ans. is 'a' i.e., Dense fibrous septae

Pulp space infection (felon)

- Pulp space infection with pus trapped between the specialised fingertip septae causes intense fingertip pain.
- It may lead to terminal phalangeal bone infection, erosion and sequestrumformation.The last of these will need to be drained and debrided.
- A common differential diagnosis with small vesicles and crusts is the self-resolving herpetic whitlow, especially in dental workers, caused by the herpes simplex virus.

827. Cause of Dupuytren's contracture is

a) DM

b) Alcohol

c) Smoking

d) All of the above

Correct Answer - D
Ans. is `d' i.e., All of the above
Dupuytren's contracture is characterized in the established phase by flexion contracture of one or more fingers from thickening and *shortening of palinar aponeurosis.*
The exact etiology is unknow; However, the condition is more commonly associated with following conditions :-

i. *Epileptics taking phenytoin*
i. *Alcoholic cirrhosis*
i. *Diabetes*
v. AIDS
v. Smoking
i. *Pulmonary TB*

- *Often both hands are affected (Bilateral disease),* one more than the other.
- The earliest sign is a small thickened nodule in the mid-palm opposite the base of ring finger.
- *Gradually this extends distally to involve the ring or little finger.*
- There is a rare, curious association with fibrosis of the corpus Cavernosum.

828. Reflex sympathetic dystrophy true is?

a) Osteoporosis

b) Increased skin temp

c) Common in athletes

d) Vasoconstriction

Correct Answer - A

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

RSD is a condition that features a group of typical symptoms, including *pain (often burning type), tenderness, and swelling of an exterimity associated with varying degrees of sweating, warmth and/or shiny skin.* It is an abnormal sympathetic response *following trauma. This is commonly encountered in colle's fracture.* However, RSD may be seen in other injuries also.

<u>Clinical manifestations of RSD</u>

- The onset of the RSD symptoms may be rapid or gradual. There are several stages :-

i. *Stage 1 (Acute) :- Burning pain,* flushing, *sweating,* swelling, *erythema,* increased heat, hyperesthesia, spotty osteoporosis.

i. *Stage 2 (dystrophic) :- Cyanotic extremity, thickened & shiny skin,* Increased sweating (hyperhidrosis), contracture; but diminished swelling & flushing. There is diffuse osteoporosis.

i. *Stage 3 (Atrophic) :- Stiffness of joints,* contracture of the involved hand or foot, Pale & cool extremity, skin is dry, tight skin, homogenous osteoporosis with thinned cortices at the joint.

Prognosis

- The prognosis varies from person to person. Spontaneous remission from symptoms occur in certain people. Others can have unremitting and crippling, irreversible changes inspite of treatment.

Treatment of RSD

- *Physical therapy :-* gradually increasing exercise program
- *Psychotherapy*
- *Sympatholytic drugs :-* Phentolamine (a. - blocker), Propranolol (13-blocker)
- *Sympathetic nerve block :- Stellate ganglion block* for upper extremity RSD and L_2- L_3 block for lower extremity.
- *Medications :* Topical analgesics, antidepressants, corticosteroids, opioids.
- *Surgical sympathectomy.*

829. Most common bone involved in haemangioma?

a) Femur

b) Tibia

c) Pelvis

d) Vertebrae

Correct Answer - D

Ans. is 'd' i.e., Vertebrae

Haemangioma

- This *benign lesion,* probably a *hemartoma,* is composed of vascular spaces lined by endothelial cells.
- They constitute *1-1.5% of all primary bone neoplasms.*
- It has a peak incidence in the *fifth decade* (according to Maheshwari, young adults).
- *About 50% of hemangiomas of bone occur in vertebrae and are most commonly situated in lower thoracic and upper lumbar regions.*
- *Other common site of involvement (20%) is skull.*
- Small bones of hands and feets may also be affected.
- 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.*
- Hemangiomas are *largely asymptomatic,* and thus most are never discovered, leading some to describe these lesions as rare.

- Treatment is radiotherapy.

830. Age group affected by osteoclastoma?

a) 5-10 years

b) 10-20 years

c) 20-40 years

d) >50 years

Correct Answer - C

Ans. is 'c' i.e., 20-40 years

Giant cell tumor (Osteoclastomal

- GCT is an *osteolytic* tumor arising from the *epiphysis* and is common *between the age of 20-40 years.*
- Though GCT is a benign tumor, it is locally very aggressive.
- Females are affected more than males.

Pathological features

- *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 tumor is encompassed by a fibrous capsule at periphery.
- The presence of *tumor giant cells* is the hallmark of this tumor.

Clinical features

- Pain at the site of the tumour.
- Gradually increasing local swelling
- Pathological fractures may occur.
- *"Eggshell-crackling" sensation on palpation.*

Radiological features

- GCT is one of the common cause of a solitary lytic lesion of the bone. o The radiological features are : -

i. A solitary may be loculated, lytic lesion.

i. Eccentric location, often subchondral.

i. Expansion of the overlying cortx (expansile lesion).
'Soap-bubble' appearance - The tumor is homogenously lytic with trabeculae of the remnants of bone traversing it, giving rise to a loculated appearance.
No calcification within the tumor.
i. None or minimal reactive sclerosis around the tumor.
i. Cortex may be thinned out, or perforated at places.
i. Tumour usually does not enter the adjacent joint.

831. A patient presents with pain in the thigh, relieved by aspirin. X-ray shows a radiolucent mass surrounded by sclerosis. Diagnosis is ?

a) Osteoma

b) Osteoid osteoma

c) Osteoblastoma

d) Osteoclastoma

Correct Answer - B
Ans. is 'b' i.e., Osteoid osteoma
Radiolucent lesion with surrounded sclerosis and pain relief by a salicylate (aspirin) are characteristics of osteoid osteoma.

832. CPPD crystals are seen in which disease ?

a) Hypothyroidism

b) Primary hyperparathyroidism

c) Hemochromatosis

d) All of the above

Correct Answer - D
Ans. is 'd' i.e., All of the above
Pseudogout (with CPPD crystals) may be associated with-
. Primary hyperparathyroidism
. Hemochromatosis
. Hypomagnesemia
. Hypophosphatasia

833. Paget's disease commonly develops in which age group ?

a) 1st decade

b) 3rd decade

c) 5th decade

d) 7th decade

Correct Answer - C

Ans. is 'c' i.e., 5th decade

Paget's disease (Osteitis deformans)

Paget's disease is characterized by increased bone turnover and enlargement and thickening of the bone, but the internal architecture is abnormal and the bone is usually brittle.

Primary defect is in osteoclasts with increased osteoclastic activity. This results secondarily increase in osteoblastic activity (normal osteoclasts and osteoblasts act in a co-ordinated manner).

So, *characteristic cellular change is a marked increase in osteoclastic and osteoblastic activity.*

Bone turnover is acclerated, plasma alkaline phosphatase is raised (a sign of osteoblastic activity) and there is increased excretion of hydroxyproline in urine (due to osteoclastic activity).

The pelvis and tibia being the commonest sites, and femur, skull, spine (vertebrae) and clavicle the next commonest.

Paget's disease occurs after 40 years of age and is more common in males.

834. Paget's disease involves which of the following bone-

a) Pelvis

b) Vertebrae

c) Skull

d) All

Correct Answer - D
Ans. is 'a' i.e., Pelvis; 'b' i.e., Vertebrae & 'c' i.e., Skull
Paget disease involves

o Skull	o Spine (vertebrae)	o Tibia
o Pelvis	o Femur	o Humerus

835. Charlie chaplin gait is seen in?

a) Congenial coxa vara

b) Tibial torsion

c) DDH

d) Genu valgus

Correct Answer - A
Ans. is 'a' i.e., Congenial coxa vara
Charlie Chaplin *Gait*

- Gait that occurs in bilateral external torsion of the tibia caused by faulty sitting or sleeping habits as in maintenance of the spread eagle or frog leg posture.
- It is seen in alkaptonuria, bilateral external tibial torsion, and flat feet with valgus at ankle.

836. Loosers Zones/ Pseudofractures are commonly seen in the following areas except -

a) Scapula

b) Ribs

c) Pelvis

d) Radius

Correct Answer - D

Answer- D. Radius

- Scapula
- Medial femoral neck & shaft
- Pubic & Ischial rami
- Lesser trochantert
- Ribs & clavicle
- Proximal ulna & radius
- Phalanges, metacarpals & metatarsals

837. Clergyman's knee involves ?

a) Olecranon bursa

b) Suprapatellar bursa

c) Infrapatellar bursa

d) Prepatellar bursa

Correct Answer - C
Ans. is 'c' i.e., lnfrapatellar bursa
Infrapatellar bursitis- Clergymans knee

838. Most common nerve injured in face lift surgery is

a) Zygomatic branch of the facial nerve

b) Greater auricular nerve

c) Mandibular branch of facial nerve

d) Frontal branch of facial nerve

Correct Answer - D

Ans. is 'd' i.e., Frontal branch of facial nerve

<u>Nerve injury during facelift surgery</u>

- Some sensory reduction after facelift surgery is considered a consequence and not a complication of facelift surgery.
- Care must be taken to avoid injury to the greater auricular nerve.
- The most commonly injured nerve is the frontal branch of the facial nerve.

839. **Which of the following conditions is the most frequent cause of spontaneous abortion in the first trimester of pregnancy?**

a) Abruptio placentae

b) Chorioamnionitis

c) Chromosomal abnormalities

d) Placenta previa

Correct Answer - C

At least 10% to 15% of normally fertilized and implanted ova are lost in the first trimester of pregnancy because of spontaneous abortion. Studies using immunoassay of **human chorionic gonadotropin (hCG)** for early diagnosis of pregnancy suggest that the percentage of fertilized ova lost in the first trimester might be even higher.
The great majority of these cases are attributable to **chromosomal abnormalities.**
Chromosomal studies are not routinely performed in such cases, but they are recommended when a malformed fetus has been identified or when habitual or recurrent abortions occur.

Abruptio placentae, a complication of the third trimester, occurs when the placenta detaches prematurely from its implantation site. Retroplacental hemorrhage develops within the space between placenta and uterine wall, leading to interruption or severe reduction in the blood supply to the fetus.

Chorioamnionitis, a complication of the second and third trimesters, results from ascending infections through the vaginal canal.
Infection of chorioamniotic membranes may lead to premature rupture of membranes and abortion or premature labor.
Placenta previa is a placenta implanted in the lower segment of the uterus.
When dilatation of this segment begins in late pregnancy, a placenta previa may cause severe bleeding and lead to premature labor.

Ref: Kipps T.J. (2010). Chapter 94. Chronic Lymphocytic Leukemia and Related Diseases. In J.T. Prchal, K. Kaushansky, M.A. Lichtman, T.J. Kipps, U. Seligsohn (Eds), *Williams Hematology*, 8e.

840. During pregnancy the maternal blood volume increases by nearly :

a) 5 – 10%

b) 15 — 20%

c) 50%

d) 70%

Correct Answer - C
Ans. is c i.e. 50%
Friends, we have dealt with hemodynamic changes during pregnancy in detail earlier but here lets quickly revise a *few changes asked quite often.*
Most important physiological changes during pregnancy (for 11th hour revision)

- Net weight gain in pregnancy is 11 kg (24 lb).°
- Blood volume T's by 40-50%.°
- Blood volume reaches maximum at 30-32 weeks.°
- Plasma volume T's by 50%.°
- RBC volume T's by 20-30%.°
- TLC is increased, specifically Neutrophilic leucocytosis occurs.°
- Total plasma proteins increase.°
- Plasma protein concentration decreases.°
- Albumin level decreases, globulin levels (specially IgA) slightly increase.°
- Fibrinogen levels increase by 50%.°
- ESR is increased.°
- All clotting factors except XI and XIII increase.°
- Platelet count decreases (Gestational Thrombocytopenia).°
- Cardiac output (stroke volume) increases to 40-50% by 30-34

weeks.°

- Peripheral vascular resistance decrease.°
- Diastolic BP decreases.°
- Uterine blood flow increases near term.°
- Plasma insulin levels increase.°
- S. Prolactin levels increase.°
- Vital capacity and respiratory rate remain constant.°
- Renal plasma flow and GFR increase.°
- All LFT'S remain unchanged, with exception of alkaline phosphatase which increases (specially heat stable alkaline phosphatase produced by placenta).°

841. **A young female is suggested for doing laparoscopy for finding out the tubal factors for her infertility. Hysterosalpingography was done 6 months before which was appeared normal. Regarding laparoscopy in this patient consider the following:**

Assertion: Ideal time for doing laparoscopy in this patient is during proliferative phase

Reason: Recent corpus luteum can be visualized and endometrial biopsy can be taken within same sitting.

a) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion

b) Both Assertion and Reason are true, and Reason is not the correct explanation for Assertion

c) Assertion is true, but Reason is false

d) Assertion is false, but Reason is true

Correct Answer - D

Laparoscopic and dye test are done doing secretory phase of the cycle for finding out the tubal factors of infertility.

Laproscopy chromotubatioz: Best confirmatory and gold standard investigation to assess tubal patency

Ref: Textbook of Gynaecology By D.C.Dutta, 4th Edition, Page 224, 226.

842. Increased blood pressure for > 3 months after delivery ?

a) Pregnancy induced hypertension

b) Essential hypertension

c) Pre eclampsia

d) Gestational hypertension

Correct Answer - B

Ans. is 'b' i.e., Essential hypertension

Diagnostic criteria for essential hypertension in pregnancy

- Rise in BP >140/ 90 mm Hgprior to 20th week of pregnancy.
- Cardiac enlargement on chest radiograph and ECG.
- Presence ofmedical disorders.
- Prospective follow up shows rise in BP ever after 42 days following delivery.

843. Which of the following is false about gestational hypertension?

a) There is a sustained rise of BP > 140/90 mmHg

b) Blood pressure returns to normal within 6 weeks of delivery

c) It is associated with lower incidence of essential hypertension in the later life as compared to pre eclampsia

d) Perinatal mortality remains unaffected

Correct Answer - C

Ans. is 'C i.e., It is associated with lower incidence of essential hypertension in the later life as compared to pre eclampsia

Gestational hypertension

- A sustained rise of blood pressure to 140/90 mm Hg or more on atleast 2 occasions 4 or more hours apart beyond the 20^{th}weeks of pregnancyor during the first 24 hours after delivery in a previously normotensive woman is called gestational hypertension.
- It is associated much higher incidence of essential hypertension in later life than pre eclampsia.
- The hypertensive effect is actually astressresponse.
- Perinatal mortality remains unaffected in a case of gestational hypertension.
- The patients with gestational hypertension are more likely to develop hypertensionwith the use of oral contraceptives or in sub sequent pregnancies.
- B.P. returns to normal within 6 weeks of delivery

844. A 32-year-old primigravida at 39 weeks of gestational age has a blood pressure reading of 150/100 mm Hg obtained during a routine visit. Her baseline blood pressure during the pregnancy was 120/70 mmHg. The patient denies any headache, visual changes, nausea, vomiting, or abdominal pain. Her repeat BP is 160/90 mmHg, and urinalysis is negative for protein. Which of the following is the most likely diagnosis?

a) Preeclampsia

b) Chronic hypertension with superimposed preeclampsia

c) Eclampsia

d) Gestational hypertension

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

- Hypertension in pregnancy is defined as blood pressure of 140/90 mmHg or greater on at least two separate occasions that are 6 h or more apart.
- The presence of edema is no longer used as a diagnostic criterion because it is so prevalent in normal pregnant women.
- A rise in systolic blood pressure of 30 mmHg and a rise in diastolic blood pressure of 15 mmHg are also no longer used.

- In gestational hypertension, maternal blood pressure reaches 140/90 or greater for the first time during pregnancy, and proteinuria is not present.
- In preeclampsia, blood pressure increases to 140/90 after 20 weeks of gestation and proteinuria is present (300 mg in 24 h or 1+ protein or greater on dipstick). Eclampsia is present when women with preeclampsia develop seizures.

845. Prostaglandin used for cervical ripening?

a) PG E1

b) PG E2

c) PGF_2 -α

d) Oral Oxytocin

Correct Answer - B
PG E2

846. Surgery in genital TB Is not indicated in -

a) Pyometra

b) Plastic bowel adhesions

c) Pyosalpinx

d) Persistence of symptoms despite medical management

Correct Answer - B

Ans. is'b'i.e., Plastic bowel adhesions

Indications for surgery in case of genital tuberculosis:

- Progression of disease
- Persistent activelesion despite chemotherapy
- Persistence of large inflammatory masses i. e. pyosalpinx, Pyometra despite chemotherapy
- Persistence of symptoms i. e. pain, menorrhagia despite chemotherapy
- Persistence offistula despite chemotherapy

Contraindications for surgery in case of genital tuberculosis:

- Active lesions elsewhere in body
- Plastic adhesions ofbowel

847. Zygote is dependent on which of the following for its nutrition -

a) Deutoplasm

b) Secretions from wall of fallopian tube and uterus

c) Sperm carbohydrate stores

d) All the above

Correct Answer - D

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

- While zygote is passing down the fallopian tube and after a brief period as it enters the uterus, it depends for its nutrition on the yolk sac granules (deutoplasm) embedded in its cytoplasm and on the fluid medium surrounding it which is secreted by the walls of the uterine tube and uterus.
- It also derives its energy from the stored carbohydrate in sperm, whichfertilized the ovum,

848. Mucosal lining of fallopian tube secretion for ovum nutrition controlled by -

a) LH

b) FSH

c) Estrogen

d) Progesterone

Correct Answer - D

Ans. D. Progesterone

- The secretions of the fallopian tube are a mode of nutrition to the developing zygote till, it reaches uterus and placenta forms.
- Progesterone increases the secretion of the fallopian tube mucous membrane and. abo causes hyperplasia of the muscular lining of the fallopian tube and makes its peristaltic movements stronger

849. All of the following are true about MRKH (Mayer – Rokitansky – Kuster – Hauser) syndrome except

a) Absent uterus

b) Absent cervix

c) Absent ovary

d) Absent vagina

Correct Answer - C

Absent ovary *[Ref.- Spheroff 7h/e p 420-21]*

- *Mayer Rokitansky kuster Hauser syndrome consists of vaginal aplasia with other mullerian (paramesonephric duct) abnormalities.* In females the paramesonephric duct *(mullerian duct)* Rives origin to *?*
  - Upper part of vagina
  - Uterus
  - Fallopian tubes
- *Thus ideally Meyer Rokitansky kuster hauser syndrome should be characterized by the complete absence of uterus, ovarian tubes and vagina.*
- *But it is seen that vaginal absence is the only consistent feature and uterus can be absent or present in* rudimentary, form.
- *Patient usually presents with anomalies of the genital tract which range ,from upper vaginal atresia to total mullerian agenesis i.e. absent vagina, uterus and, fallopian tubes.*
- *Ovaries remains unaffected in this syndrome because ovaries originate within the primitive ectoderm, independent of the*

mesonephros. Because ovarian function is normal, the patient experiences all bodily changes associated with menstruation and puberty.

Features of Meyer Rokitansky kustner Hauser (Mullerian av,enesis syndrome)

- Sporadic inheritance
- Karyotype 46xx
- Normal breast development°
- *Normal (adie)) and pubic hair*
- Uterus absent°
- Vagina absent°
- Cervix absent°
- Ovary nonnal°
- Testosterone (female levels)
- Associated anomalies
- *The presentation of complete mullerian agenesis (Meyer Rokitansky kuster Hauser syndrome) may be confused with androgen insensitivity syndrome.*

  - In androgen insensitivity syndrome a patient has XY karyotype and functioning testes however, the body cannot respond to testosterone due to mutations in the androgen receptor.
- These two syndromes are compared below

Comparison of Mullerian agenesis and Androgen insensitivity syndrome

Presentation	Mullerian agenesis	Androgen insensitivity
• Inheritance pattern	Sporadic	X-linked recessive
• Karyotype	46xx	46xy
• Breast development	Yes	Yes
• Axillary and pubic hair	Yes	No
• Uterus	No	No
• Gonad	Ovary	Testis
	Female	

• Testosterone	Female levels	Male levels
• Associated anomalie	Yes	No

850. True statement (s) about indirect inguinal hernia ?

a) 25% is bilateral

b) In children, if inguinal (indirect) hernia is present in one side, then processus vaginalis is intact on other side

c) In Bubonocele, sac lies in the inguinal canal

d) b and c

Correct Answer - D

Ans. is 'b' i.e. In children, if inguinal (indirect) hernia Is present In one side, then processus vaginalis is intact on the other side; 'c' In bubonocele, sac lies in the inguinal canal

Important points about Indirect Inguinal hernia

- In Indirect inguinal hernia the contents of the abdomen *enter the deep inguinal ring* and traverse the whole length of the inguinal canal to come out through the *superficial inguinal ring.*
- It is the *most common* of all forms of hernia.
- It is most common in the young (cf. *a direct hernia is most common in the old)*
- More common in males *(-20 times)*
- It is more common on the right side.
- It is bilateral in *12% of cases.*
- Indirect inguinal hernia usually occurs when there is a *partially or completely patent processus vaginalis* (although *multiple other factors* are responsible for formation of indirect inguinal hernia, patent processus vaginalis seems to be the prime factor)
- *"If both sides are explored in an infant presenting with one hernia, the incidence of a patent processus vaginalis on the other side is 60%" - Bailey & Love*

- *Indirect Inguinal hernias are classified into 3 types*
  a) Bubonocele: *in this case the hernia is limited in the inguinal canal.*
  b) Funicular : *here the processus vaginalis is closed at its lower end just above the epididymis. The contents of the hernial sac can be felt separately from the testis which lies below the hernia.*
  c) Complete (or Vaginal): *here the processus vaginalis is patent throghout. The hernial sac is continuous with the tunica vaginalis of the testis. The hernia descends down to the bottom of scrotum and it is difficult to differentiate the testis from the hernia.*
- Surgery is the treatment of choice

851. **A female with a family history of a genetic disorder became pregnant. Transabdominal chorionic villus sampling (CVS) can be done in:**

a) 7-9 weeks

b) 10 weeks to term

c) 9-11 weeks

d) 13-15 weeks

Correct Answer - B

Chorionic villus sampling (CVS) is the second most common procedure for genetic prenatal diagnosis. This procedure is routinely performed transcervically at about **10–12 weeks of gestation and transabdominally from 10 weeks to term.** Limb reduction defects are high when CVS was performed at less than 10 weeks of gestation.

Ref: Textbook of Obstetrics by DC Dutta, 6th edition, Page 108.

852. **What is the total iron requirement during pregnancy ?**

a) 500 mg

b) 750 mg

c) 1000 mg

d) 1500 mg

Correct Answer - C

Total iron requirement during pregnancy is 1000 mg, this requirement is mostly limited to last 12 weeks.

Physiological changes in iron metabolism during pregnancy

In the second half of pregnancy the daily iron requirement is 6 - 7 gm.

Serum iron concentration decreases

Serum ferritin decreases

Serum total iron binding capacity increases

Percentage saturation (serum ferritin/ serum TIBC) decreases

Serum transferrin increases

853. MC cause of secondary amenorrhoea is:
March 2004

a) Pregnancy

b) TB

c) Thyrotoxicosis

d) None of the above

Correct Answer - A
Ans. A i.e. Pregnancy

854. **A 55-year-old woman complains to a physician because she has been having chronic pelvic discomfort. On further questioning, she reports chronic lower back pain, constipation, difficulty with walking, and impaired coitus. Pelvic examination demonstrates that the uterine cervix lies low within the vaginal canal, but does not protrude through the introitus. For minor degrees of this patient's disorder, Kegel exercises are sometimes prescribed. These can be performed by asking the patient to do which of the following?**

a) Close the glottis and increase abdominal pressure

b) Contract muscles to interrupt a stream of flowing urine

c) Press the knees together

d) Tense the buttocks

Correct Answer - B

The Kegel exercises are specifically designed to contract the pubococcygeus muscle, and can be performed by interrupting the flow of urine. Patients with minor degrees of **prolapse** may also be treated with a pessary, which is a small object placed in the vagina that serves as a mechanical support for the uterus.

Estrogen therapy is also of some help in some patients. Severe degrees of prolapse may require either hysterectomy or surgical strengthening of the pelvic floor. First choice describes the Valsalva maneuver, which these patients should not do, because it increases intra-abdominal pressure and may worsen the prolapse. (They should also avoid lifting heavy objects for the same reason).

855. Abruption of placenta occurs in all EXCEPT

a) Smokers

b) Folic acid deficiency

c) Alcoholics

d) PIH

Correct Answer - C
Alcoholics

856. Whick metabolic derangement is seen in pregnancy

a) Metabolic acidosis

b) Metabolic alkalosis

c) Respiratory acidosis

d) Respiratory alkalosis

Correct Answer - D

Ans. is `d' i.e., Respiratory Alkalosis

- *Hyperventilation in pregnancy will lead to respiratory alkalosis.*
- *The hyperventilation that occur during pregnancy is probably due in part to progesterone stimulating the centre.*
- *Lung volume changes and altered compliance may also contribute.*
- *The effect is a chronic respiratory alkalosis which is compensated by renal excretion of bicarbonate.*

Typical ABG in the third tirmesters

*p*H → *7.43*

PCO_2 → *33 mmHg*

CO; → *21 mmHg*

PO2 → *104 mmHg*

857. **A 25 year old primigravida with history of mitral stenosis and mitral regurgitation is in labour. She prefers a normal vaginal delivery. Which would be the best way to provide analgesia for this lady?**

a) Epidural anaesthesia

b) Spinal anaesthesia

c) Inhalational analgesia

d) Intravenous opioids

Correct Answer - A

In pregnant patients with valvular heart disease there is
significant stress on the cardiovascular system which leads to decompensation in previously asymptomatic individuals.
During labour there is significant stress and inorder to reduce the pain and sympathetic stimulation, epidural anesthesia is preferred in such cases.

In pregnant patients with mitral stenosis, mitral regurgitation, aortic stenosis or aortic regurgitation epidural anaesthesia is the preferred route during labour.

858. The effective pressure to be achieved in vacuum extraction is :

a) 0.1 kg/cm^2

b) 0.1 kg/cm^2

c) 0.6 kg/cm^2

d) 1.2 kg/cm^2

Correct Answer - C
0.6 kg/cm^2

859. Intervillous space placenta contains howmuch blood -

a) 50 ml

b) 100 ml

c) 150 ml

d) 200 ml

Correct Answer - C

Ans. is 'c' i.e., 50 ml

Volume of blood in mature placenta	500 ml
Volume of blood in intervillous space	150 ml
Blood flow in intervillous space	500 - 600 ml/ min
Pressure in intervillous space	30-50mmHg
During uterine contraction	10-15mmHg
During uterine relaxation	
Pressure in the supplying uterine artery	70-80 mmHg
Pressure in the draining uterine artery	8 mmHg

860. A young lady with 6 weeks amenorrhea had nausea and vomiting with severe abdominal pain. Her BP was 100/80 mm Hg. Examination revealed a 5 x 5 cm adnexal mass. What is the plan of management?

a) Plan for immediate laparoscopic surgery

b) beta-hCG

c) Methotrexate

d) Give IV fluids, keep NPO and observe for 4-5 days

Correct Answer - A

Ans: A. Plan for immediate laparoscopic surgery

(Ref: Dutta 8/e. p215, 7/e p180-182; 24/e p3855

- Here adnexal mass size is 5 x 5 cm - Hence expectant management cannot be done.
- Patient is hemodynamically stable - Hence laparoscopic surgery is management of choice.
- **Ectopic Pregnancy – Treatment:**

Laparoscopy:

- Preferred surgical treatment for ectopic pregnancy, unless hemodynamically unstable.

Salpingostomy:

- Procedure of choice hemodynamically stable patient.
- Recommended surgical procedure for ampullary ectopic pregnancy.
- Retains fertility.

- **Salpingotomy**: Not done nowadays
- **Segmental resection & anastomosis:** Done in isthmic pregnancy
- **Fimbrial expression**: Done in distal ampullary pregnancy.

861. A 20 year old woman gives a history of sharp pain in the lower abdomen tor 2 - 3 days every month approximately 2 weeks before the menses. The most probable etiology for her pain is :

a) Endometriosis

b) Dysmenorrhea

c) Pelvic tuberculosis

d) Mittelschmerz

Correct Answer - D
Mittelschmerz

- Afemale giving history of sharp pain in lower abdomen, every month, 2 weeks before the menstruation suggests mittelschmerz as the diagnosis.
- Mittelschmez is synonymous to painful ovulation. Pain is associated with rupture of ovarian follicle at the time of ovulation
  Characteristics of : Mittelschmerz or Ovular pain
- It appears in the mid-menstrual period.º
- Pain is usually situated in the hypogastrium or to one iliac fossa.º
- Pain is usually located on one side and does not change side according to which ovary is ovulating.º
- Nausea and vomitinois consDicuouslv absent.º
- It rarelv lasts for more than 12 hours.º
- It may be associated with slight vaginal bleeding or mucoid discharge.º
- The probable factors - Increased tension of graffian follicle just prior

are :	to rupture.º - Peritoneal irritation by follicular fluid following ovulation.º - Contraction of tubes and uterus.º

Management :

- Assurance and analgesics
- In refractory cases cycles are made anovular by giving OCPs

Also Know : The phenomenon of ovulation bleeding or mucus tinged with blood at the time of ovulation is called as mittel blutº . This may be associated with ovulation pain, although each may occur independently.

862. Most common congenital heart disease during pregnancy -

a) ASD

b) VSD

c) TOF

d) AS

Correct Answer - A
ANS. A. ASD

- Atrial Septal Defect (ASD) ostium secundum type is the most common congenitalheart disease encountered in pregnancy.

863. Blastocyst implantation close to internal os causes

a) Placenta previa

b) Placenta percreta

c) Placenta increta

d) Abruptio Placenta

Correct Answer - A
A i.e. Placenta previa
- When the placenta is implanted partially or completely over the lower uterine segment, over and adjacent to the internal os, it is called placenta previa

864. Drug of choice for Epilepsy in pregnancy is -

a) Carbamazepine

b) Sodium valproate

c) Phenobarbitone

d) Phenytoin

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

865. Vaginal delivery is contraindicated in :

a) Central placenta praevia

b) Previous LSCS

c) Eclampsia

d) Antepartum hemorrhage

Correct Answer - A
Central placenta praevia

866. Heterotopicpregnancy -

a) Incidence is l0%

b) Occurs following assisted reproductive techniques

c) Has two extrauterine gestational sacs

d) Has one gestational sac in fallopian tube and other intrauterine

Correct Answer - B

Ans. is'b'i.e., Occurs following assisted reproductive techniques

- Heterotopic pregnancy
- It is the rare simultaneous existence of intrauterine and extrauterine gestational sacs.
- Itisararecomplicationofmultiplepregnancy,butitsincidenceincreasestol% ofthepregnanciesfollowingassistedreproductive techniques.

867. The classic triad of ruptured ectopic pregnancy includes all except

a) Fainting

b) Abdominal pain

c) History of amenorrhoea

d) Vaginal bleeding

Correct Answer - A

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

The symptoms of patient with ruptured ectopic pregnancy are as follows:

- Classic triad of abdominal pain, history of amenorrhoea and vaginal bleeding.
- Abdominal pain is the most constant feature with acute agonizing colicky type of pain.
- Shoulder pain may be present due to diaphragmatic irritation from hemoperitoneum leading to referral shoulder pain.
- Vomiting and fainting attacks are observed in 10%o of the patients due to reflex vasomotor disturbances following peritoneal irritation from hemoperitoneum.

868. What is the treatment of choice of unrupturece tubal pergnancy with serum b-hCG titre 20001 U1 ml:

a) Single dose of methotrexate

b) Vairable dose of methotrexate

c) Expectant management

d) Laparoscopic salpingostomy

Correct Answer - A

Ans. is a i.e Single dose of methotrexate

The lady in the question is presenting with unruptured ectopic pregnancy with BhCG levels - 2000IU/L. So there is not doubt we can manage the patient medically (i.e. option d - ruled out)

Expectant management as explained earlier is not better than medical management as it carries the risk of rupture of ectopic pregnancy (i.e. option C ruled out) and also it is done when riFICG levels are < 1000 IUL

Now - The question arises whether we should give single dose MTx or multidose methotrexate treatment. In the trials which have been conducted - No difference was found in treatment duration, phCG levels and side effects in single dose vs multidose methotrexate therapy.

Single dose therapy is more commonly used becasue of simplicity. It is less expensive, requires less invasive post therapy monitoring and does not require leucovorin supplementation.

One trial has shown that multidose therapy has greater chance of success than single dose but this is not supported by any other trial so, single dose methotrexate is being used commonly. (So, it is our option of choice.)

option of choice.)

Also know :

Single dose Medical treatment protocol for ectopic pregnancy.

Day 0 / **Day I** **=** Measure **serum r3hCG,** TLC, DLC, **Liver Function Test and Renal Function Test**

Day 2 = Single dose Methotrexate 50 mg/m2 IM given

Day 4 = S. VilICG and counts repeated

Day 7 = S. 13hCG and counts repeated

Now if the decline in serum jhCG on Day 7 from day 4 is?15%/Fetal cardiac activity present

Repeat methotrexate dose and begin new Day 1

Surgical treatment is indicated if rihCG levels not decreasing or fetal cardiac activity persists

after three doses of methotrexate

869. Hidradenoma of vulva occurs arises from

a) Apocrine glands

b) Sebaceous glands

c) Subcutaneous tissue

d) Hair follicle

Correct Answer - A

Ans. is 'a' i.e., Apocrine glands

- Hidradenoma - arises from the apocrine glands ofvulva.
- It rarely exceeds 1 cm size
- Histologically it shows cystic spaces enclosing a papillary adenomatous mass
- It may undergo malignant change and thus requires excision.

870. Footling presentation with normal baby at 39 weeks of gestation, what is the best line of management?

a) Caesarean section

b) Vaginal delivery

c) External cephalic version

d) Expectantmanagement

Correct Answer - A

Ans. is'a'i.e., Caesarean section

Elective caesarean section is preferred in woman with > 38 weeks of gestation with breech when:

- Estimatedfetal weight is > 3.5 Kg
- Hyperextendedhead
- Footlingpresentation
- Pelvic inadequacy
- Associated complication (obstetric and/ or medical)
- Absence ofexpertisefor delivery

871. Best parameter for ultrasound evaluation of IUGR is

a) Placental membrane

b) Length of femur

c) Abdominal circumference

d) BPD

Correct Answer - C
Ans. is c i.e. Abdominal circumference
"Abdominal circumfernece (AC) is the single most sensitive parameter to detect IUGR. Serial measurements of AC and estimations of fetal weight are more diagnostic to fetal growth restriction."

872. TB endometritis causes infertility by :

a) Causing anovulation

b) Destroying endometriumTubal blockage

c) Ciliary dysmotility

d) Option B and C Both

Correct Answer - D

Ans. is b and c i.e. Destroying endometrium; and Tubal blockage

- Most common site for genital T:B is fallopian tube (90% cases) .
- Uterus is involved in 70% cases of genital tuberculosis.
- The infection to uterus descends from the tube i.e. if T:B endometritis is present, invariably tubes are involved.
- Most common symptom of Genital TB : **Infertility** (35 – 60%). Infertility° is either due to blockage of fallopian tube° or due to loss of tubal function even if tubes are patent.°

Tubercular endometritis causes uterine scarring which destroys the endometrium leading to synechia formation (Ashermann syndrome) and infertility.

"In developing countries, genital TB may account for 3% or more of patients with infertility. In these cases tuba! damage and endometrial adhesions are the underlying cause."

873. Cusco’s speculum is –

a) Double bladed posterior vaginal speculum

b) Bivalve selfretaining vaginal speculum

c) Double bladed selfretaining posterior vaginal speculum

d) Bivalve double bladed vaginal speculum

Correct Answer - B

Ans. is 'b' i.e., Bivalve self retaining vaginal speculum

Cusco's self-retaining bivalved speculum is a surgical instrument used for vaginal and cervical examination

- It limits the visualization of the vaginal walls.
- It is used to visualize the cervix and the vaginal fornixes for the local cause of APH.
- It is also used for minor procedures like pap smear and IUCD insertion.
- It is also used to detect the leakage of liquor from the cervical os in case of suspected PROM.

874. Clinically vesicovaginal and ureterovaginal fistula are differentiated by :

a) USG

b) IVP

c) Cystoscopy with dye

d) Methylene blue three swab test

Correct Answer - D
Methylene blue three swab test

875. Most common mass descending mass per vaginum

a) Labial cyst

b) Vaginal cyst

c) Myoma

d) Uterovaginal prolapse

Correct Answer - D

Ans. is 'd' i.e., Uterovaginal prolapse

- Mass descending per vaginum is a common gynaecological complaint and is most often due to uterovaginal prolapse.

876. First symptom of pregnancy is:
Kerala 07

a) Tingling in the breasts

b) Amenorrhea

c) Morning sickness

d) Quickening

Correct Answer - B
Ans. Amenorrhea

877. In dysmenorrhoea indomethacin works by –

a) Inhibiting prostaglandin synthetase

b) Suppressing ovulation

c) Reducinginflammation

d) Relaxing smooth muscle

Correct Answer - A

Ans.a Inhibiting prostaglandin synthetase

- Indomethacin is a NSAIDs. All NSAIDs act by inhibiting prostaglandin synthesis by inhibiting enzyme cyclooxygenase.

878. Diameter of graafian follicle at the time of ovulation is -

a) 10mm

b) 15mm

c) 20mm

d) 25mm

Correct Answer - C

Ans. C. 20mm

- Ovulation is aprocessby which a secondary oocyte is released from the ovaryfollowingrupture of a mature Graafian follicle and becomes available for conception.
- There is a pre - ovulatory enlargement in the Graafian follicle and it measures about 20 mm at the time of ovulation.

879. Following changes are seen during capacitation of a sperms except ?

a) Increased permeability to calcium

b) Decreased permeability to calcium

c) Removal of cholesterol from acrosome

d) Increased motility

Correct Answer - B
Ans. is 'b' i.e., Decreased permeability to calcium
Capacitation of sperm (spermatozoa)
Spermatozoa leaving the testis (seminiferous ubules) are not fully mobile. They continue their maturation and acquire their mobility during their passage through epididymis. From epididymis they come to vas deference, distal end of which also receives the secretions of seminal vesicle, and continues as the ejeculatory duct. The ejeculatory duct joins the prostatic urethra.
Once ejeculated into the the female, vaginal secretions improve the motility and fertilizing ability of sperms. Further exposure to secretions of female genital tract (in uterus and/or fallopian tube) further improves the mobility and fertilizing ability of the sperms. The beneficial effects of stay in the female genital tract are collectively called capacitation, from the isthmus, capacitated sperms move rapidly to the ampullas, where fertilization takes place.
Following changes occur during capacitation :-
i) Uterine and fallopian tube fluids wash away the various inhibitory factors that suppress sperm activity in male genital tract.
ii) Removal of cholesterol vesicle from acrosome so that acrosomal membrane becomes weak and can release enzyme at the time of fertilization.

iii) Increase membrane permeability to calcium ion.

880. First symptom invulval cancer is-

a) Pain

b) Pruritis

c) Ulcer

d) Blood discharge

Correct Answer - B
Ans. B.Pruritis

- Women with WN and yulvar cancer commonly present with pruritus and a visible lesion.
- However, pain, bleeding, and ulceration may also be initial complaints'

881. Hormone responsible for decidual reaction and Arias stella reaction in ectopic pregnancy is :

a) Oestrogen

b) Progesterone

c) HCG

d) HPL

Correct Answer - B

Ans. is b i.e. Progesterone

- A single progesterone measurement can be used to establish that there is a normally developing pregnancy with high reliability.
- A *value exceeding 25 ng/mL excludes ectopic pregnancy with 92.5% sensitivity.*

Arias stella reaction

- Arias stella reaction is characterized by adenomatous change of the endometrial glands.
- Cells loose their polarity, have hyperchromatic **nucleus, vacuolated** cytoplasm and occasional mitosis.
- The reaction is seen in ectopic pregnancy (in 10-15% cases) and indicates blightening of conceptus be it intrauterine or extrauterine. **(therfore it is not specific for ectopic pregnancy)**
- It occurs under the influence of progesterone.°

Decidual reaction

- Under the hormonal effect of ectopic pregnancy (i.e. oestrogen, progesterone and chorionic gonadotrophin) the endometrium hypertrophies and is converted to decidua similar to normal uterine pregnancy.

- **The decidua has all the characteristics of intrauterine pregnancy except it does not have chorionic** villi.°
- The decidual reaction occurs under the influence of estrogen, progesterone and HCG.°
  So, hormone which is common to both Arias stella reaction and decidual reaction is progesterone which is our answer of choice.

882. **A 27 year old obese woman is presenting with oligomenorrhoea, infertility and hirsuitism. What is the most likely diagnosis?**

a) Polycystic ovaries

b) Endometriosis cystic ovaries

c) Pelvic inflammatory disease

d) Turner's syndrome

Correct Answer - A

PCOS is a syndrome manifested by amenorrhea, hirsuitism and obesity associated with enlarged polycystic ovaries.

Patients presents with obesity, hirsuitism, oligomenorrhea or amenorrhea and infertility. Investigations reveals LH:FSH >3:1, reduced level of SHBG and sex hormone binding globulin, elevated levels of androstenedione and serum insulin level, marginally elevated levels of serum testosterone and DHEAS. Transvaginal ultrasonography shows enlarged ovary with peripherally arranged cysts.

Ref: Textbook of Gynecology By DC Dutta, 4th Edition, Pages 285, 405, 421-3

883. Condition not responsive to medical therapy

a) Invasive mole

b) Choriocarcinoma

c) Hydatidiform mole

d) Persistent gestational trophoblastic disease

Correct Answer - C

Ans. is'c' i.e., Hydatidiform mole

- It is an abnormal condition o[the placenta where there are partly degenerative and partly proliferative changes in the young chorionic villi.
- It is best regarded benign neoplasia of the chorion with rnalignant potential.
- Management: Suction evacuation

884.

In which part of fallopian tube ectopic pregnancy will have longest survival?

a) Isthmus

b) Ampulla

c) Cornua

d) Interstitium

Correct Answer - D

If the implantation occurs in the antimesenteric border in the ampulla, the pregnancy may continue a little longer time.

Earliest interruption occurs in the isthmial implantation and pregnancy may continue upto 3-4 months in interstitial implantation.

Also know:

- Isthmic rupture usually occurs at 6-8 weeks, the ampullary one at 8-12 weeks and the interstitial one at about 4 months.

Ref: Textbook of Obstetrics by DC Dutta, 6th edition, Page 181.

885. Cervical incompetence is characterised by :

a) Cerclage operation done

b) 2nd trimgster abortion

c) Premature rupture of mombrane

d) All

Correct Answer - D
Ans. is a, b and c i.e. 2nd trimester abortion; Premature rupture of membrane; and Cerclage operation done
Causes of cervical incompetence
Congenital: Uterine anomalies
Acquired: Following D and C operation;Induced abortion by D and E operation; Vaginal operative delivery through an undilated cervix; amputation of the cervix or cone biopsy.
Other: Multiple gestations or prior preterm birth.

886. True about HCG:
September 2012

a) Produced by cytotrophoblast

b) Prevent involution of corpus luteum

c) Value reaches maximum level at 20 week of pregnancy

d) Its secretion starts after 2 day of ovulation

Correct Answer - B

Ans. B i.e. Prevent involution of corpus luteum

Beta-HCG

- Human Chorionic Gonadotropin
- It is produced by the syncytiotrophoblast of the placenta and secreted into blood of both mother and fetus.
- It can be detected in maternal serum or urine as early as 1- 9 days of feritisation
- The blood and the urine values reach maximum levels ranging between 100 IU - 200 IU /ml between 60 - 70 days of pregnancy.
- The concentration falls slowly to I0 - 20 IU/ml by 100 - 130 days of pregnancy.
- It is chemically and functionally similar to pituitary leutenising hormone
- It acts as a stimulus for the secretion of progesterone by the corpus luteum of pregnancy.
- The rescue and maintenance of corpus luteum till 6 weeks of pregnancy is the major biological function of hCG.
  - It stimulates the leydig cells of the male fetus to produce testosterone. t It has immunosuppressive activity.
  - It stimulates adrenal and placental steroidogenesis and has thyrotropic activity.

- It promotes secretion of relaxin from corpus luteum.
- High levels of hCG are detected in multiple pregnancy, hydatidiform mole, choriocarcinoma and down's syndrome.
- Low levels of hCG are found in ectopic pregnancy and spontaneous abortion.

887. Initial starting dose of clomiphene citrate in case of infertility is -

a) 30mg/d

b) 40mg/d

c) 50mg/d

d) 60mg/d

Correct Answer - C
Ans. is 'c' i.e., 50mg/d
o It acts as a *pure estrogen antagonist in all human tissues.*
Ovulation should be induced with clomipthene qtrate (CC), with a dose of 5O mgday startingfrom day 2 to day 6 of the cycle for 5 days.
If the response to 50 mg CC is not satisfactory, the dose of CC should be increased to 100 mg/day from day 2 to day 6.

888. Yuzpe and Lance regimen for 'post — coital' contraception :

a) 100 mg of ethinyl oestradiol and 0.5 mg of levonoregestel initially followed by the same dose after 12 hours

b) Same as above but followed by same dose after 24 hours

c) Use of 150 mg of DMPA every 3 months

d) 200 mg NET — EN every 60 days

Correct Answer - A
100 mg of ethinyl oestradiol and 0.5 mg of levonoregestel initially followed by the same dose after 12 hours

889. **All of the statements regarding progesterone only pill are true, except**

a) Inhibits ovulation

b) Failure rate is the same as combined OCP

c) Irregular bleeding is a known complication

d) Acts by altering the cervical mucous

Correct Answer - B

Failure rate of combined OCP is 0.2/100 women years, whereas failure rate of progesterone only pill is about 0.5 - 2 per 100 women years of use.

Progesterone only pill acts by thickening cervical mucous, causing atrophy of endometrium or by inhibiting ovulation.

890. Most common infection associated with IUCD use is

a) Chlamydia

b) Staphylococcus epidermidis

c) Staphylococcus aureus

d) Group D Streptococcus

Correct Answer - A
Ans. a.Chlamydia

- Infections with chlamydia and actinomyces are most common with use of IUCD

891. Fibromyoma is seen in age group

a) Reproductive

b) Early adolescence

c) Latepostmenopausal

d) Prepubertal

Correct Answer - A

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

- Fibroids are the most common benign solid tumours in females.
- It is the most common Pelvic tumour
- Most commonly affects the reproductive age group.
- Most commonly seen in nulliparous common

892. For salpingitis true is

a) Always bilateral

b) Associated with overt injury

c) Not associated with future infertility

d) Bacterial vaginosis is not a risk factor for pelvic inflammatory disease development

Correct Answer - D

Ans. is 'd' i.e., Bacterial vaginosis is not a risk factor for pelvic inflammatory disease development

Pelvic inflammatory disease (PlD)

- It is the infection of upper female reproductive tract organs.
- As fallopian tube are involved most commonly, it is also called as acute salpingitis.
- It is associated most commonly with N gonorrhoea and chlamydial infection.
- Bacterial vaginosis is not a risk factor for PID.
- PID / acute salpingitis may be unilateral or bilateral.

SequelaeofPlDare:-

1. Tubal factor infertility
2. Ectopic pregnancy
3. Chronic Pelvic Pain

893. If patient has acute salpingitis and peritonitis, then what is the stage of PID?

a) Stage 1

b) Stage 2

c) Stage 3

d) Stage 4

Correct Answer - B

Ans. is 'b' i.e., Stage 2

Pelvic inflammatory disease (PID) implies inflammation of upper genital tract involving the fallopian tubes as well as the ovaries.

The spectrum ranges from mild to moderate and severe PID. Depending upon the severity of tubal damage, Gainesville has described five stages of PID :

- Stage I - Acute salpingitis without peritonitis
- Stage II - Acute salpingitis with peritonitis
- Stage III - Acute salpingitis with superimposed tubal occlusion or tubo - ovarian complex
- Stage IV -Ruptured tubo - ovarian abscess
- Stage V - Tubercular salpingitis.

894. During laparoscopy the preferred site for obtaining cultures in a patient with acute pelvic inflammatory disease is :

a) Endocervix

b) Pouch of Douglas

c) Endometrium

d) Fallopian tubes

Correct Answer - D

Ans. is d i.e. Fallopian tube

- *Laparoscopic visualization of the pelvis is the most accurate method of confirming diagnosis of an acute P1D.*
- However, it is not practical to advise diagnostic laparoscopy to all patients of PID,
- Indications of Laparoscopy in Acute PID :
  – Patients not responding to therapy, in order to confirm the diagnosis.
  – To obtain cultures from cul-de-sac or fallopian tube.
  – To drain pus. if necessary.

Thus, cultures can be obtained from both cul-de-sac and fallopian tube.

Telinde's Operative Gynae. 9/e, p 679 further says "Laparoscopy is an excellent means of obtaining cultures directly from the tubes." My answer to this question is *Fallopian tube.* You can have your opinion.

895. Most common side efiect of mifepristone

a) Fever

b) Headache

c) Diarrhea

d) Rash

Correct Answer - C
Mifepristone (RU 485)

- It is a 19 norsteroid with potent antiprogestational and significant antiglucocorticoid and antiandrogenic actitity.
- It is used in termination of pregnancy, cervical ripening postcoital contraceptive, once a month contraceptive, in induction of labour and to treat cushing's syndrome.
- Commonly reported side afects include vaginal bleeding, cramping, nausea, vomiting, diarrhea, dizziness, back pain & tenderness.

896. 29 years female, G2 P1 A1 with 16 weeks amenorrhoea, lower abdominal pain and vaginal bleeding, ultrasonography shows snow storm appearance. What is the most feasible method of treatment

a) Misoprostol administration

b) Hysterectomy

c) Mifepristone

d) Suction evacuation

Correct Answer - D

Ans. D. Suction evacuation

- 29 yrs female with amenorrhea of 16 week with lower abdominal pain and vaginal bleeding and snow storm appearance on USG gives us a diagnosis of hydatidiform mole.
- The most preferred definitive treatment in case of hydatidiform mole in almost all cases is suction evacuation.
- It can be easily done upto 28 week of gestation.
- In favourable cervix suction evacuation is done with a negative pressure of 200 - 250 mm Hg.
- The cervix is closed prior dilatation isfollowed by suction and evacuation.

897. Acantholytic cells in blister cavity ?

a) Pemphigus

b) Bullous pemphigoid

c) Epidermolysisbullosa

d) Dermatitis herpetiformis

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

Important Tzank smear finding of bullous lesions

- VZV and HSV infection —> Multinucleated giant cells
- Pemphigus —> Acontholytic cells
- Pemphigoid —> Predominantly eosinophils

898. Multinucleate giant cells are seen in Tzank smear in ?

a) Herpesgenitalis

b) Bullous pemphigoid

c) Toxic epidermal necolysis

d) Pemphigus

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

899. Anti leprosy drug causing ichthyoses is ?

a) Dapsone

b) Clofazamine

c) Rifampicin

d) Clarithromycin

Correct Answer - B

Ans. is 'b' i.e., Clofazamine

Acquired ichthyosis (Ichthyosis acquista)

- Acquired ichthyosis is seen in : **?**

1. Deficiency :- Protein, Vitamin A, Kwashiorkor, Marasmus.
2. Infection :- Leprosy, AIDS
3. Senile ichthyosis :- Elderly
4. Systemic diseases :- SLE, DM, hypothyroidism, Sarcoidosis, liver & kidney diseases.
5. Malignancy, especially Hodgkin's lymphoma.
6. Drugs :- Clofazimine, Statins, triparanol.

900. Punched out lesion or inverted saucer appearance are characteristic of which stage of leprosy?

a) Tuberculoid

b) Borderline tuberculoid

c) Borderline lepromatous

d) Lepromatous

Correct Answer - C
Ans. is 'c' i.e., Borderline lepromatous

901. Wickmann's straie seen in ?

a) Lichen planus

b) Psoriasis

c) Dermatomyositis

d) Warts

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

902. Characteristic lesion in scabies

a) Burrows

b) Vesicle

c) Papule

d) Pustule

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

- Burrow is serpentine (S.shaped), thread like grey brown line which represents the intraepidermal tunnel created by moving female mite in stratum corneum. Burrow is pathognomic sign of scabies. Burrows are very difficult to demonstrate in infants.
- Also See explanation-3 of session-6 of Skin of All India 2014-15 pattern of this book.

903. Skin involvement in toxic epidermal necrolysis?

a) < 10 %

b) l0 - 20%

c) 20 - 30%

d) > 30%

Correct Answer - D
Ans. is 'd' i.e., > 30%
<u>Erythema multiforme</u>

- It is an acute , often self limited eruption characterized by a distinctive clinical eruption, the hallmark of which is target lesions (Iris lesions). EM can present with wide spectrum of severity which can be classified into

1. Erythema multiforme minor

- It is simply referred to as *erythema multiforme (i.e.* if not specified about other 2 types, erythema multiforme means EM minor). Localized eruption of skin with or without mucosal involvement.

2. Steven- Johnson syndrome (SJS)

- There are mucosal erosions with pruritic macules. In this epidermal detatchment is 10-30% of the body surface area.

3. Toxic epidermal necrolysis (TEN)

- When skin detachment is more then 30% of BSA. It is also called Lyell's syndrome.
- Therefore TEN & SJS are considered as single syndrome i.e. SJS-TEN syndrome (Erythema multiforme major). If area involved is more than 30% it is TEN & if area involved is 10-30%, it is SJS.

904. Dermatophytes involve?

a) Stratum corneum

b) Stratum lucidum

c) Stratum malpighi

d) Stratum basal

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

- See explanation-4 of session-11 of Skin of All India 2014-15 pattern of this book.

905. FDA approved drug for the treatment of superficial basal cell carcinoma is ?

a) Imiquinod

b) Acyclovir

c) Clobesterol

d) Terbinafine

Correct Answer - A
Ans. is 'a' i.e., i.e., Imiquinod
Imiquimod [5%]

- Immunomodulator and enhances both innate and acquired immunity.
- It is used in the treatment of actinic keratosis, bowen's disease, keloids, basal cell carcinoma and anogenital warts.
- It is applied for 8 - 12 hrs, 3 days/ week for 16 weeks.

Superficial basal cell carcinoma

- Superficial BCC is characterized microscopically by buds of malignant cells extending into the dermis from the basal layer of the epidermis. The peripheral layer shows palisading cells. There may be epidermal atrophy, and dermal invasion is usually minimal. There may be a chronic inflammatory infiltrate in the upper dermis. This histologic sub- type is encountered most often on the trunk and extremities, but may also appear on the head and neck.
- Imiquimod (5% cream) has been used in the treatment of skin cancers.Approved in 2004 by the FDA for the topical treatment of biopsy- confirmed, small (less than 2 cm), primary superficial BCC.

906. Adult patient presents with hypopigmented scaly macules on chest and back; wood's lamp examination of the lesions will showYellow

a) Yellow

b) Coral red

c) Bright red

d) Blue green

Correct Answer - D
Ans. is 'd' i.e., Blue Green
Information in this question :
1. Adult patient
2. Hypopigmented macule
3. With scales
4. Over chest and back

- Most probable diagnosis is: Pityriasis versicolor.
- *See explanation- 3 of session- 8 of Skin of All India 2014-15 pattern of this book*

907. Donovan bodies are seen in:

a) Granuloma inguinale

b) LGV

c) Syphilis

d) Herpes genitalia4

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

908. Bilateral symmetrical maculopapular rash onpalms and soles is a feature of ?

a) Primary syphilis

b) Secondary syphilis

c) Tertiary syphilis

d) Congenital syphilis

Correct Answer - B
Ans. is 'b' i.e., Secondary syphilis
Primary syphilis

- Lesion of primary syphilis is chancre (Hard chancre). It occurs at the site of entery of spirochete. Primary chancre is well defined punched out ulcer which has following characteristics ?
- Single lesion
- Painless
- Avascular (non-bleeding)
- Firm inducation
- Usually superficial (but may be deep)
- Well circumscribed with elevated round or oval edges
- Cartilagenous consistency
- Lymphadenopathy which is painless, firm and nonsuppurative.
- Sites of involvement are *penis in heterosexual males; rectum, anal canal, mouth in homosexual males; and cervix and labia in females.*

909. Sago grain like vesicular eruption is seen in?

a) Pompholyx

b) Seborrhoeic dermatitis

c) Atopic dermatitis

d) Syphilis

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

910. The mainstay of treatment of vitiligo is?

a) PUVA

b) Imiqinod

c) Acyclovir

d) Coal tar

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

911. Diagnosis of contact dermatitis is done by ?

a) PATCH test

b) Woods lamp

c) Skin biopsy

d) Darrier's sign

Correct Answer - A
Ans. is 'a' i.e., PATCH test
Diagnosis of Contact dermatitis

- Diagnosis of contact dermatitis is made by patch test. Patch test is the only effective means of confirming contact dermatitis. In patch test reading is taken after 48-72 hours to see the signs of delayed hypersensitivity, i.e., induration.

912. Lichenisation occurs in which layer of skin?

a) Stratum malpighi

b) Stratum corneum

c) Stratum lucidum

d) Stratum granulosum

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

913. **Scenario: A 35 year old lady is diagnosed with Pemphigus Vulgaris by her dermatologist.**

Assertion: Pemphigus vulgaris presents with flaccid blisters and oral erosions in a middle aged person.

Reason: It is a intraepidermal blistering disorder due to antibodies against desmogleins.

a) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion

b) Both Assertion and Reason are true, and Reason is not the correct explanation for Assertion

c) Assertion is true, but Reason is false

d) Assertion is false, but Reason is true

Correct Answer - A

Pemphigus vulgaris is an intraepidermal blistering disease due to antibodies against desmogleins (epidermal attachment complexes).
It presents with flaccid blisters and oral erosions in a middle aged person.
The subepidermal blistering disorders present with tense blisters.
Ref: Rook's Textbook of Dermatology, 8th Edition, Page 40.3

914. Drug not given in treatment of tenia versicoloris?

a) Miconazole

b) Selenium sulfide

c) Sodium thiosulfate

d) Griseofulvin

Correct Answer - D
Ans. is 'd' i.e., Griseofulvin
Treatment of P. versicolor
1. Systemic --> Ketoconazole, Fluconazole, Itraconazole.
2. Topical --> Azoles (clotrimazole, econazole, micronazole, ketoconazole), selenium sulfide, sodium thiosulphate, whitfield's ointment (3% salicylic acid + 6% benzoic acid).

915. SAPHO syndrome components are all except?

a) Acne

b) Hyperostosis

c) Osteitis

d) Acantholysis

Correct Answer - D
Ans. is 'd' i.e., Acantholysis
SAPHO Syndrome

- SAPHO syndrome is manifested by synovitis, acne, pustulosis, hyperostosis, and osteitis.
- It is predominantly associated with hyperostosis of the anterior chest, palmoplantarpustulosis, hidradenitissuppurativa, and acne fulminans.
- Its etiology is unknown.
- Reported successful treatments for SAPHO syndrome are NSAIDS, sulfasalazine, and infliximab.The bisphosphonates are beneficial for treating the associated bone pain.

916. Hair infection with scutula formation is seen in case of?

a) Tenia capitis

b) Jock itch

c) Tenia glabrosa

d) Tenia barbae

Correct Answer - A

Ans. is 'a' i.e., Tenia capitis

Clinical features of tinea capitis

- Based on clinical picture, tinea capitis is divided into :?

1. Non-inflammatory tinea capitis :- It is caused by Anthropophilic organism (e.g., T.tonsurans), so less inflammation. It may be :?
2. *Scaly type* --> Partially bald area with *peripheral scales.* Hair present in bald area are lusturless and easily pluckable.
3. *Blackdot type* ---> Hair are broken at the level of skin surface giving *black dot appearance.* Trichophyton tonsurans is the chief cause of Black-dot Tenia capitis.

- Inflammatory tinea capitis :- It is caused by *Zoophilic organism (e.g.,* M.canis), which elicit intense inflammation.It presents as boggy swelling pustulation-known as kerion. Pus discharges from multiple sinuses. Hair from the swelling are easily and painlessly pluckable. Lymphadenopathy (occiptal) may occur.
- Favus :- It is caused by T.schoenleinii. It is characterized by presence of foul-swelling *yellowish cup-shaped crust* (Scutula) entangling many scalp hair.

917. 60 year female with tense bulla in lower extremity and subepidermal bullous lesion on microscopy, diagnosis is?

a) Bullous pemphigoid

b) Pemphigus vulgaris

c) Erythema multiforme

d) Dermatitis herpetiformis

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

- See explanation- 1 of session- 10 of Skin of All India 2014-15 pattern of this book.

918. 30 years old male presents with painful flaccid bullae on right face and oral mucosa without evidence of inflammation or redness; what is the most probable diagnosis?

a) Pemphigus vulgaris

b) Pemphigus foliaceous

c) Bullous pemphoid

d) Dermatitis herpetiformis

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

919. Thimble pitting of nails is seen in

a) Psoriasis

b) Pemphigus

c) Lichen planus

d) Alopecia areata

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

920. Nikolsky sign is seen in?

a) Salmonella infectio

b) Gram negative bacteremia

c) Meningococci infection

d) Staphylococci infection

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

921. Most sensitive method of non invasive monitoring of cardio-vascular ischemia in perioperative period is ?

a) NIBP

b) ECG

c) Pulse oximeter

d) TEE

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

- Two dimensional TEE is the most sensitive method to detect myocardial ischemia and air embolism in peri-operative period.
- Detection of regional wall motion abnormality a rapid and more sensitive indicator of myocardial ischemia than is the ECG
- Decreased systolic wall thickening may be more reliable index for ischemia than endocardial wall motion abnormality alone

922. For anesthesiology mild systemic disease included in ASA grade

a) 1

b) 2

c) 3

d) 4

Correct Answer - B
Ans. is 'b' i.e., 2

923. The ideal parameters for cardiac massage in cardiopulmonary resuscitation are all except ?

a) Force should depress sternum by 11/2 inches

b) Ratio of compression to ventilation should be 15:2

c) Compressions to be given over lower third of sternum

d) Force should depress sternum approximately 1/3 of chest wall diameter

Correct Answer - B
Ans. is `b,' i.e., Ratio of compression to ventilation should be 15:2

924. What is the modification of the Mapelson E breathing system used in infants?

a) Mapelson A

b) Mapelson B

c) Mapelson C

d) Mapelson F

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

MAPLESON F SYSTEM

- It is a modification of Mapleson E by Jackson Rees and is known as Jackson Rees modification.
- It has a 500 ml bag attached to the expiratory limb. This bag helps in respiratory monitoring or assisting the respiration. It also helps in venting out excess gases.
- It is used in neonates, infants, and paediatric patients less than 20 kg in weight or less than 5 years of age.
- See explanation- 5 of session- 6 of Anaesthesia of All India 2014-15 pattern of this book.

925. Which of the following is NOT an amide ?

a) Lignocaine

b) Procaine

c) Mepivacaine

d) Dibucaine

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

926. Most cardiotoxic local anaesthetic is?

a) Bupivacaine

b) Procaine

c) Prilocaine

d) Dibucaine

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

927. 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.

928. 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. is 'c' i.e., Hypertension

929. In spinal anaesthesia the drug is deposited between

a) Dura and arachnoid

b) Pia and arachnoid

c) Dura and vertebra

d) Into the cord substance

Correct Answer - B
Ans. is 'b' i.e., Pia and arachnoid matter
Spinal anaesthesia

- In spinal anaesthesia LA is injected into subarachnoid space (space between pia matter and arachnoid matter).
- Structure pierced during SA (from outside in) - Skin - Subcutaneous tissue —> Supraspinous & intraspinous ligament —> Ligamentum falvum —> Duramater —>Arachnoidmater.
- Site of spinal anaesthesia
- L2_3 or L3_4 intervertebral space in adult (In adult spinal cord ends at lower border of Ll vertebrae).
- L_{4_5} intervertebral space in children (spinal cord ends at lower border of L3 vertebrae in children).
- Spinal anaesthesia leads to creation of a zone of differential blockade, ie motor fibres are blocked two levels lower and autonomic fibres are blocked two levels higher than the sensory blockade due to different sensitivity of different fibres.

930. Shortest acting skeletal muscle relaxant is ?

a) Suxamethonium

b) Mivacurium

c) Pancuronium

d) Vecuronium

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

- Suxamethonium (succinylcholine) is the shortest acting skeletal muscle relaxant.
- Mivacurium is the shortest acting nondepolarizing skeletal muscle relaxant.

931. Maximum histamine is released by ?

a) dTubocurarine

b) Succinylcholine

c) Pancronium

d) Gallamine

Correct Answer - B
Ans. is 'a' i.e., d Tubocurarine
<u>Important facts about muscle relaxants</u> (from Goodman & Gilman)

- *Longest acting Neuromuscular blocker Pancuronium (duration of action 120-180 minutes).* Note - KDT has mentioned doxacurium as longest acting.
- Shortest and fastest acting neuromuscular blocker Succinylcholine (suxamethonium) - duration of action 5-8 minutes.
- Shortest acting competitive (nondepolarizing) neuromuscular blocker Mivacurium (duration of action 12-18 minutes).
- Fastest acting nondepolarizing blocker Rocuronium (can be used for endotracheal intubation as an alternative to Sch).
- Histamine release is caused by --> D-TC (maximum tendency), succinylcholine, mivacurium, doxacurium, atracurium, tubocurarine can cause bronchoconstriction.
- Virtually no histamine release.---- Pancuronium
- Maximal vagal block and tachycardia is caused by -9 Pancuronium (Previously it was gallamine, but it is not used now).
- Vagal stimulation is caused by —) succinylcholine.
- Maximum ganglion blockade is caused by d-TC
- Ganglion stimulation is caused by Succinylcholine
- Most commonly used muscle relaxant for routine surgery -9

vecuronium.

- Most potent skeletal muscle relaxant --> Doxacurium.
- oelaxa Least potent skeletal muscle relaxant Succinylcholine (Gallamine was least potent but it is not used now).
- Least potent nondepolarizing muscle rnt --> Rocuronium.

932. A patient on atracurium develops seizures due to accumulation of ?

a) Didanosine

b) Laudanosine

c) Methylated Atracurium

d) Sulfated Atracurium

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

933. Probable indicators of reversal of neuromuscular blockade are all except ?

a) Lift head for 5 seconds

b) Sustain hand grip for 5 seconds

c) Leg lift for 10 seconds

d) Ability to perform sustained tongue depressor test

Correct Answer - C
Ans. is 'c' i.e., Leg lift for 10 seconds
Clinical pointers for the reversal of neuromuscular blockade are:

- Lift head for 5 seconds.
- Lift leg for 5 seconds.
- Sustained hand grip for 5 seconds.
- Ability to perform sustained tongue deprssor test.

934. Agent causing malignant hyperthermia is?

a) Succinylcholine

b) 1120

c) Ether

d) Verapamil

Correct Answer - A
Succinylcholine REF: Goodman and Gillman p. 152 11th edition
"Succinylcholine is the most common drug used in anesthesia to cause Malignant Hyperthermia"
MALIGNANT HYPERTHERMIA
Malignant hyperthermia is a potentially life-threatening event triggered by certain anesthetics and neuromuscular blocking agents.
Clinical features: contracture, rigidity, and heat production from skeletal muscle resulting in severe hyperthermia, accelerated muscle metabolism, metabolic acidosis, and tachycardia.
Mechanism: Uncontrolled release of Ca2+ from the sarcoplasmic reticulum of skeletal muscle is the initiating event. Although the halogenated hydrocarbon anesthetics (e.g., halothane, isoflurane, and sevoflurane) and succinylcholine alone reportedly precipitate the response, most incidents arise from the combination of depolarizing blocking agent and anesthetic. Susceptibility to malignant hyperthermia, an autosomal dominant trait
Treatment: Intravenous administration of dantrolene (DANTRIUM), which blocks Ca2+release and its sequelae in skeletal muscle. Rapid cooling, inhalation of 100% oxygen, and control of acidosis should be considered adjunct therapy in malignant hyperthermia

935. Malignant hyperthermia is caused due to which of the following mechanism?

a) Increased intracellular Na

b) Decreased intracellular chlorine

c) Increased intracellular Ca

d) Increased serum K

Correct Answer - C
Ans. is 'c' i.e., Increased intracellular Ca

936. Not an intravenous anaesthetic

a) Etomidate

b) Thiopentone

c) Ketamine

d) Cyclopropane

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

937. Index of potency of general anesthesia ?

a) Minimum alveolar concentration

b) Diffusion coefficient

c) Dead space concentration

d) Alveolar blood concentration

Correct Answer - A
Ans. is 'a' i.e., Minimum alveolar concentration
Minimal alveolar concentration

- It is the lowest concentration of the anaesthetic in pulmonary alveoli needed to produce immobility in response to a painful stimulus (surgical incision) in 50% individuals.
- It is the measure of potency of inhalation GAs

938. Inhalation agent of choice in head injury with raised ICT is ?

a) Isoflurane

b) Enflurane

c) Sevoflurane

d) None

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

- It is an isomer of enflurane with similar properties but 11/2 times more potent.
- BP falls due to vasodilation, while cardiac output is maintained inhalation anaesthetic of choice in Cardiac surgery (intravenous anaesthetic of choice for cardiac surgery is etomidate).
- It does not sensitize the heart to Adr --> Safe in pheochromocytoma.
- Isoflurane causes minimum increase in ICT Preferred agent in increased ICT.
- It does not provoke seizures —> preferred in neurosurgery.
- Uterine and skeletal muscle relaxant action is similar to halothane —> can be used for assisting version as an alternative to halothane.
- It causes significant respiratory depression.
- Isoflurane is the volatile agent of choice in liver disease as it has least effect on hepatic blood flow.
- It can cause coronary steal phenomenon.
- It can be used for day care surgery (also sevoflurane and desflurane).
- It is also used to produce controlled hypotension, as it causes maximum decrease in systemic vascular resistance.

939. Diffusion hypoxia seen during ?

a) Induction of anesthesia

b) Reversal of anesthesia

c) Post operative period

d) None of the above

Correct Answer - B
Ans. is 'b' i.e., Reversal of anaesthesia
Second gas effect and diffusion hypoxia

- In initial part of induction, diffusion gradient from alveoli to blood is high and larger quantity of anaesthetic is entering blood.
- If the inhaled *Concentration of anaesthetic is high (eg N_20),* Substantial loss of alveolar gas volume will occur and it creates negative intralveolar pressure that leads to removal of more gas from cylinder to alveoli Concentration effect.
- If another inhalation agent is (eg Halothane) is being given at the same time, it also will be delivered to lung from the cylinder (due to negative intraalveolar pressure) *Second gas effect.*
- *During recovery* reverse occurs - N_20 having low blood solubility, rapidly diffuses into alveoli and dilutes the alveolar air --> partial pressure of oxygen in alveoli is reduced.
- The resulting hypoxia is known as *diffusion hypoxia.*
- Diffusion hypoxia can be prevented by continuing 100% 0_2 inhalation for a few minutes after discontinuing N20, instead of straight away switching over to air.

940. Which chamber enlargement show double right heart border with wide subcarinal angle?

a) Left atrium

b) Left ventricle

c) Right atrium

d) Right ventricle

Correct Answer - A
Left atrium REF: Sutton's radiology 7th edition page 294
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
- Prominence of the portion of the left heart border at the level of the left main bronchus

941. Phosphorous — 32 emits:

a) Beta particles

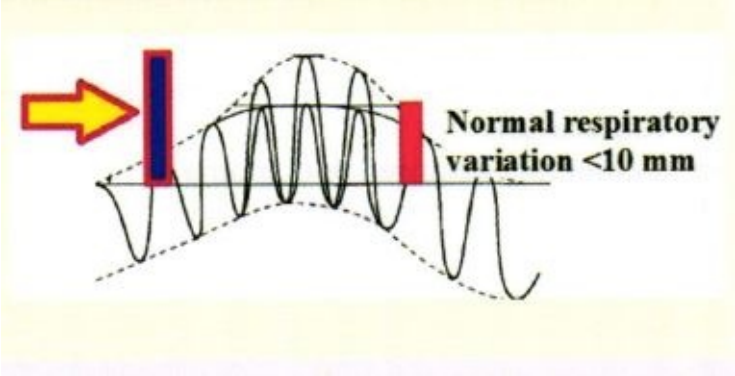
b) Alfa particles

c) Neutrons

d) X-rays

Correct Answer - A
Ans. Beta particles

942. The best investigation for the pulse shown in the picture below is ?



a) 2-D echocardiography.

b) Real time echocardiography.

c) Ultrasound.

d) M-mode echocardiography.

Correct Answer - A
The pulse shown in the picture above represents **Pulsus paradoxus, and is most commonly seen with cardiac tamponade.**
The best investigation for cardiac tamponade is 2-D echocardiography.

943. Which one is non-ionising radiation -

a) MRI

b) CT Scan

c) X-ray

d) Position emission scintigraphy

Correct Answer - A
Ans. is'a'i.e., MRI [Ref Grainger Sth/ep.703]

- Ionizing Radiation: X-ray, Barium studies, IVU, CT scan, Mammography, fluoroscopy DEXA
- Non Ionizing radiation: USG, MRI, microwaves, UV rays, Radiofrequency waves, Thermography (infrared rays)

944. Wavelength of UVB rays is -

a) 290 - 320 nm

b) 320 - 360 nm

c) 360 - 390 nm

d) 390 - 420 nm

Correct Answer - A

Ans. is 'a' i.e., 290 - 320 nm

- UV rays are used directly to treat skin conditions. It is simply referred to as phototherapy.

These may be : ?

a. UVB phototherapy (290-320 nm)
b. Narrow band UVB phototherapy (311 nm)
c. UVA1 phototherapy (360-380 nm)

945. Unit of radiation exposure ?

a) Gray

b) Roentgen

c) Sievert

d) Red

Correct Answer - B
Ans. is 'b' i.e., Roentgen
Units of potency

- Roentgen and coulomb per kilograme → Units of exposure. It is the amount to which a person is exposed.
- Red and Gray→ Units of absorbed dose. It is the amount which is absorbed per gram of tissue.
- Rem and Sievert → Product of the absorbed dose and the modifying factor. Represent the degree of potention danger to health

946. A patient is having Mitral stenosis. His x-ray will show all of the following finding *except*

a) Lifting up of left bronchus

b) Double atrial shadow

c) Obliteration of retrosternal shadow on lateral x-rays

d) Posterior displacement of esophagus on barium swallow

Correct Answer - C
C i.e. Obliteration of retrosternal shadow on lateral X Ray

947. Spider leg appearance is found on:
September 2012

a) Polycyctic kidney

b) Pyelonephrits

c) Hydronephrosis

d) Renal artery stenosis

Correct Answer - A
Ans. A i.e. Polycystic kidney
Urinary system: Radiological signs and conditions

- Flower vase appearance: Horse shoe kidney
- Fish hook bladder: BPH
- Dropping flower sign: Ectopic ureter
- Cobra head appearance: Ureterocoele
- Adder head appearance: Ureterocoele
- Rim sign: Hydronephrosis
- Crescent sign: Hydronephrosis
- Golf hole bladder: TB urinary bladder
- Thimble bladder: Chronic TB
- Bilateral spider leg pattern: Polycystic kidneys
- Bilateral spider leg pattern: Polycystic kidney
- Thimble bladder: Chronic TB
- Rim sign: Hydronephrosis
- Cobra head appearance: Ureterocoele
- Adder head appearance: Ureterocoele

948. All are X-ray findings of retinoblastoma except :

a) Widening of optic canal

b) Intra cerebral calcification

c) Intraocular calcification

d) Secondaries in cranial bones

Correct Answer - B
B i.e. Intracerebral calcification
Retinoblastoma is the malignant congenital intraocular tumor arising from primitive *photoreceptor cells of retina* (included in primitive neuroectodermal tumor).
Histologically, it shows *Flexner-Wintersteiner rosettesQ* (50%) *Home-Wright rosettesQ &fleurettesQ.* Clinically presents with *cat's eye reflex/leukokoriaQ.*
Retinoblastoma is the most common cause orbital calcificationQ (nodular or punctate calcification & is favourable prognostic sign.) *Enlargement of orbit & orbital canalQ* occurs d/t involvement of optic nerve & intracranial extension. *Metastasize to meninges, cranial bonesQ,* bone marrow, lung, liver, lymph node.

949. A newborn presenting with intestinal obstruction showed on abdominal X-ray, multiple air fluid levels. The diagnosis is not likely to be-

a) Pyloric obstruction

b) Duodenal atresia

c) Illeal atresia

d) Ladd \ s bands

Correct Answer - A
A i.e. Pyloric obstruction

950. Best imaging study for the earliest diagnosis of cerebral infarct-

a) FLAIR MRI

b) Non-contrast CT

c) CECT

d) Diffusion-weighted MRI

Correct Answer - D
Diffusion-weighted MRI
Diffusion-weighted MRI detects cytotoxic edema in just a few hours of infarction.

951. Ramsted's operation is for -

a) Duodenal atresia

b) Volvulus of small intestine

c) Anorectal malformation

d) Congenital pyloric stenosis

Correct Answer - D
Ans. is 'd' i.e., Congenital pyloric stenosis

952. All the following show miliary shadows on chest X-ray *except:*

a) Pneumoconiosis

b) Mitral stenosis

c) Sarcoidosis

d) Staphylococcal pneumonia

Correct Answer - D
Ans. Staphylococcal pneumonia

953. Preferred imaging modality for choanal atresia is

a) X ray

b) CT SCAN

c) MRI

d) PET SCAN

Correct Answer - B

CT SCAN in choanal atresia
CT SCAN in coronal and saggital projections provides a thorough evaluation of choanal atresia and adjescent structures.
The axial views supply fundamental information including site of obstruction, composition of atretic plate and unilateral or bilateral involvement.
Thus CT SCAN is the preferred imaging modality.

954. **Which of the following has most penetrating power?**

a) α particle

b) β particle

c) γ - radiation

d) Electron beam

Correct Answer - C

Penetration power maximum for gamma rays (1000 times of a rays). Minimum for alpha rays.

Ref: Park's Preventive and Community Medicine, 16th Edition, Page 514 and 17th Edition, Page 521

955. Which of the following malignant tumours is radioresistant?

a) Ewing's sarcoma

b) Retinoblastoma

c) Osteosarcoma

d) Osteosarcoma

Correct Answer - C
Ans. Osteosarcoma

956. Anencephaly can be diagnosed by USG at

a) 10-12 weeks of gestation

b) 14-18 weeks of gestation

c) 20-24 weeks of gestation

d) 24-28 weeks of gestation

Correct Answer - A
A i.e. 10-12 weeks of gestation

- Earliest detectable congenital anomaly on USG is *Anencephaly.Q*
- Anencephaly can be diagnosed
  - *Earliest at 10 weeksQ Best at 12 weeksQ (100% accuracy)*

957. Most common feature of sarcoidosis on chest X-ray is:
March 2011, March 2013

a) Pleural effusion

b) Cavitation

c) Bilateral hilar lymphadenopathy

d) Pneumothorax

Correct Answer - C

Ans. C: Bilateral hilar lymphadenopathy

Sarcoidosis may be discovered unexpectedly on routine chest films as bilateral hilar lymphadenopathy

Sarcoidosis/Sarcoid/Besnier-Boeck disease/Besnier-Boeck-Schaumann disease

- It is a disease in which abnormal collections of chronic inflammatory cells (granulomas) form as nodules in multiple organs.
- The combination of erythema nodosum, bilateral hilar lymphadenopathy and arthralgia is called Lofgren syndrome.
- This syndrome has a relatively good prognosis
- Chest X-ray changes are divided into four stages
  - Stage 1: Bihilar lymphadenopathy
  - Stage 2: Bihilar lymphadenopathy and reticulonodular infiltrates
  - Stage 3: Bilateral pulmonary infiltrates
  - Stage 4: Fibrocystic sarcoidosis typically with upward hilar retraction, cystic and bullous changes

958. All of the following are diagnostic barium follow through features of ileocecal tuberculosis EXCEPT

a) Apple - core appearance

b) Pulled up contracted cecum

c) Widening of ileocecal angle

d) Strictures involving terminal ileum

Correct Answer - A

A i.e. Apple - core appearance

- Apple core sign is seen in carcinoma of colonQ whereas ileocecal tuberculosis presents with stricture of terminal ileum, widening of ileocecal angle and pulled up contracted cecumQ on barium study.

959. Hilar dance on fluoroscopy is seen in:

a) ASD

b) TOF

c) VSD

d) TGV

Correct Answer - A
Ans. ASD

960. In which of the following form of imaging, Harmonic Imaging is related -

a) Sonography

b) Digital radiography

c) MRCP

d) Nuclear imaging

Correct Answer - A
Ans. is 'a' i.e., Sonography
[Ref: Ultrasound teaching manual p. 16]

- Harmonic imaging is a technique in ultrasonography that provides images of better quality as compared with conventional ultrasound technique.

961. Excretory urography is contraindicated in:

March 2011

a) Renal artery hypertension

b) Single kidney

c) Multiple myeloma

d) Trauma

Correct Answer - C
Ans. C: Multiple myeloma
Contraindication to excretory/intravenous urography are 1) iodine sensitivity or previous reaction to contrast media, 2) pregnancy, 3) intractable cardiac or renal failure and 4) multiple myeloma

962. A 4 year old child suffered from a fall on outstretched hand. X rays revealed a fracture with the fracture line at the physes with a small metaphyseal fragment.
There was no epiphyseal fracture. What type of injury by Salter Harris Classification is this ?

a) I

b) II

c) III

d) IV

Correct Answer - B
Answer- B. II

- Type II : The fracture involves the physis and a triangle of metaphyseal bone (Thurston Holland sign).This is the commonest type of epiphyseal injury.

963. Efficacy of phototherapy is not affected by-

a) Skin pigmentation

b) Type of light used

c) Spectral irradiation by incident light

d) Initial concentration of bilirubin

Correct Answer - A
Answer- A. Skin pigmentation
'Efficacy ofphototherapy depends upon irradiance, surface area exposed, distance from phototherapy unit, initial serum total bilirubin and adequacy of breastfeeding.'- Ghai 7/e pl50

964. Appropriate exposure time for topical phototherapy after TMP application

a) 10-20 min

b) 30- 40 min

c) 50-60 min

d) 1-2 hours

Correct Answer - A
Ans. is'a'i.e., 10-20 min
lRef: IADW textbook of dermatology 3'd/e p. 17191
Topical PUVA:

- A lotion containing 0.1-l7o 8-MOP is applied on affected area and is exposed to UVA either immediately or after 1-2 hours.
- Alternatively a vanishing cream containing 0.01% TMP is applied 10-20 minutes before exposure.

965. **According to DSM IV, Mania of Bipolar Disorder will fulfil the diagnostic criteria if the symptoms persist for what period of time in a young lady who is not hospitalised?**

a) 1 week

b) 2 week

c) 3 week

d) 4 week

Correct Answer - A

A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week (or any duration if hospitalization is necessary) is the minimum time for the diagnosis for manic illness, according to DSM-IV-TR criteria.

During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

- Inflated self-esteem or grandiosity
- Decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
- More talkative than usual or pressure to keep talking
- Flight of ideas or subjective experience that thoughts are racing
- Distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)
- Increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation
- Excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments)

966. All are true about bullemia nervosa, except ?

a) Binge eating

b) Self-induced vomiting

c) Weight loss

d) Purgative abuse

Correct Answer - C
Ans. is 'c' i.e., Weight loss
Bulemia Nervosa

- Bulimia nervosa is characterized by episodes of uncontrollable excessive eating (binges) followed by vigrous weight-reducing measures like self-induced vomiting, purgative abuse, diuretics, or abuse of emetics; and less commonly severe dieting and sternous exercise.
- Episodes of binge eating occur relatively frequently (twice a week or more) for at least 3 months.
- As in anorexia nervosa, there is extreme preoccupation with the shape and weight of the body. However, bulimiia nervosa differs from anorexia nervosa : ?

1. Patients of bulimia are slightly older than those with anorexia i.e., *Late adolescence.*
2. Most of the patients with bulimia nervosa have a weight within their normal weight range.
3. Amenorrhea is usually not present and most are sexually active, compared with anorexia nervosa patients.
4. Peculiar behavior about the food of anorexia nervosa is absent.
5. Depressive symptoms are more common ---> Post-binge anguish.

- Patient with bulimia nervosa may have dental caries/tooth decay,

Sore throat, Swollen Salivary gland (parotitis), and internal bleeding due to vomiting.

967.

In which of the following chronic conditions, degenerative changes in the brain are seen, which is not a part of normal ageing?

a) Amnestic syndrome

b) Dementia

c) Delirium

d) Pseudodementia

Correct Answer - A
Ans. a. Amnestic syndrome
In amnestic syndrome, degenerative changes in the brain are seen, which is not a part of normal ageing. `

Amnestic Syndrome

- The amnestic disorders are characterized by problems with memory function.
- Some people experience difficulty recalling events that happened or facts that they learned before the onset of the amnestic disorder. This type of amnesia is called retrograde amnesia.
- Other people experience the inability to learn new facts or retain new memories, which is called anterograde amnesia.
- People with amnestic disorders do not usually forget all of their personal history and their identity, although memory loss of this degree of severity occurs in rare instances in patient

968. **The following are characteristic of autism, EXCEPT:**

a) Onset after 6 years of age

b) Repetitive behavior

c) Delayed language development

d) Severe deficit in social interaction

Correct Answer - A

The onset of autistic disorder always occurs before age 3, at two peak periods.

Autistic disorders are characterized by the triad of impaired social interaction, communication and imagination. These are associated with rigid repetitive pattern of behaviour.
Ref: Essential Pediatrics By O P Ghai, 6th Edition, Page 65; Autism: A Very Short Introduction By Uta Frith, 2008, Preview.

969. Suicide is most common in ?

a) Depression

b) Alcohol dependence

c) Dementia

d) Schizophrenia

Correct Answer - A
Ans. is 'a' i.e., Depression
Causes/Risk factors for suicide

- Psychiatric disorders : - Depression (most common), alcoholism (2nd mc), Drug/Substance dependence, Schizophrenia, Dementia.
- Physical illness : - Cancer, AIDS, Multiple sclerosis, Head trauma.
- Psychosocial factors : - Failure in love, marital difficulties, family dispute, illegitimate pregnancy.
- Biological factors : - Decrease in serotonin
- Other - Male sex, Age > 40 years, Single (Unmarried, divorced or widowed), previous suicide attempt, social isolation.

970. Regarding Alzheimer's disease which is/are not true :

a) Initial loss of long term memory

b) Delayed loss of short term memory

c) Step ladder pattern

d) All

Correct Answer - D
A. i.e. Initial loss of long term memory B. i.e. Delayed loss of short term memory C. i.e. Step ladder pattern

971. Magnan's symptoms is :

a) Illusion

b) Delusion

c) Formication

d) Depersonalization

Correct Answer - C
C i.e. Formification

972. Psychosurgery is used in ?

a) Phobia

b) Generalized anxiety

c) OCD

d) Depression

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

973. 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.

974. **All are the pharmacologic therapeutic options for achalasia, EXCEPT:**

a) Nitrates

b) Beta blockers

c) Botulinum toxin

d) Sildenafil

Correct Answer - B

Pharmacologicals therapies are usually ineffective. They can be used as a temporary measures.

The agents used are:
1. Nitrates
2. Calcium channel blockers
3. Botulinum toxin
4. Sildenafil- **phosphodiesterase inhibitors, effectively decrease LES pressure.**

Botulinum toxin, injected into the LES under endoscopic guidance, inhibits acetylcholine release from nerve endings and improves dysphagia in about 66% of cases for at least 6 months

Ref: Harrison, Edition-18, Page-2432

975. Most common perceptual disturbance in delirium is?

a) Illusion

b) Decreased perceptions per unit of time

c) Visual Hallucination

d) Auditory hallucination

Correct Answer - B
Ans. is'b'i.e., Decreased perceptions per unit of time
lRef: Neurology in Clinical Practice: Principles of diagnosis and management 4h/e p. 301

- The most common perceptual disturbance is decreased perceptions per unit of time."

976. Bipolar disorder II is characterized by?

a) Hypomania plus mania

b) Depression alone

c) Mania and depression

d) Hypomania and depression

Correct Answer - D
Hypomania and depression REF: Current Diagnosis & Treatment in Psychiatry Chapter 21
Bipolar disorders can be conceptualized into three distinct entities:
1. Bipolar I disorder, consisting of episodes of mania cycling with depressive episodes
2. Bipolar II disorder, consisting of episodes of hypomania cycling with depressive episodes
3. Cyclothymic disorder, consisting of hypomania and less severe episodes of depression. Very few patients have only manic episodes.

977. All are reversible causes of dementia except ?

a) Hypothyroidism

b) Hydrocephalus

c) Meningoencephalitis

d) Alzheimer's disease

Correct Answer - D
Ans. is 'd' i.e., Alzhimer's disease
Reversible causes of dementia

1) Surgically treatable :- Normal pressure hydrocephalus, brain tumors (frontal lobe tumor), meningioma, subdural hematoma due to head injury, hydrocephalus.

2) Medically treatable :- Depression, hypothyroidism, alcohol abuse, vitamin B_n/folate/Niacin deficiency, any metabolic or endocrine disturbance, neurosyphilis, Hashimoto's encephalopathy, Wilson's disease, celiac disease, whipple's disease, chronic meningoencephalitis, drugs and toxin (toxic dementia).

Irreversible causes of dementia :-

- Alzheimer's disease, vascular (multi-infarct) dementia, Parkinsonism, Huntington's chorea, Lewy body dementia, Pick's disease.

978. Methadone is used in the management of opioid addiction because-

a) Its analgesic activity is less than that of morphine

b) It is an opioid receptor antagonist

c) It is not addictive

d) *It* is longer acting and causes milder withdrawal symptoms

Correct Answer - D
Ans. is 'd' i.e., It is longer acting and causes milder withdrawal symptoms

979. Not a feature of paradoxical sleep is :

a) Decreased muscle tone

b) Rapid eye movements

c) Brain shows increased metabolism

d) EEG shows decreased activity

Correct Answer - D

D i.e. EEG shows decreased activity

Features	NREM	REM
Other names	Synchronised or S-sleep/ Orthodox-Sleep/ Quiet-Sleep	Desynchronized D-Sleep, *A-wave/ Active-SleepQ, Paradoxical sleepQ*
EEG	- Synchronized - *Theta wave'* (I) - *Sleep spindles & K-ComplexQ* (II) - *Delta waveQ* (III & IV)	- *Low voltage Fast activity Saw tooth wavesQ* - Ponto- geniculo occipita spikes - *Reappearance of alpha wavesQ*
EMG	Partial relaxation	*AtoniaQ* of antigravity & intercostal muscles
Cerebral metabolism		
Brain temperature	-I,	t Q
EOG	Slow or Quiescent eye movement	*Rapid eye movementsQ*
Genital Tumescence	Infrequent	*CommonQ*
Dreaming	Infrequent	Frequent

Pathology	*Night terrorQ.* *Nocturnal eneurasisQ* *BruxismQ* *SomnambulismQ* Somniloquy	*Night maresQ* *NarcolepsyQ*

980. CAGE questionnaire is used in:
AP 07; MP 09; NEET 13

a) Alcohol dependence

b) Opiate poisoning

c) Dhatura poisoning

d) Barbiturate poisoning

Correct Answer - A
Ans. Alcohol dependence

981. Test to differentiate between psychological and organic erectile dysfunction:
NEET 13

a) Pharmacologically induced penile erection therapy

b) Nocturnal penile tumescence

c) Sildenafil induced erection

d) Squeeze technique

Correct Answer - B
Ans. Nocturnal penile tumescence

982. Drug used for penile erection -

a) Sildenaphil

b) Apomorphine

c) Papaverine

d) All of the above

Correct Answer - D
Ans. is'd'i.e., All of the above
[Ref KDT fl/e p. 303-304 6 &/e p. 296; Katzung LLth/e p. 197)
Drugs used in erectile dysfunction
1. Phosphodiesterase-S inhibitors (Sildenafil, Todafil, Vardenafil)
2. Alprostadil (Prostaglandin El)

983. A 70 yr old man presents with a h/o prosopagnosia, loss of memory, 3rd person hallucinations since 1 month. On examination deep tendon reflexes are increased, mini mental state examination score is 20/30. What is the most likely diagnosis?

a) Dissociated dementia

b) Schizophrenia

c) Depression

d) Cortical dementia

Correct Answer - D
Loss of memory is found in dementia in old age .Though there is 3rd person hallucination which can also be present in dementia depression mania but history of increase in deep tendon reflexes and MMSE score 20 or less, points towards dementia

984. **Human body has rhythmic fluctuations in their function on a circadian cycle. Circadian rhythm is controlled by:**

a) Suprachiasmatic nuclei

b) Median eminence

c) Paramedian nuclei

d) Supraoptic nuclei

Correct Answer - A

Within the hypothalamus, a specific cell group, the **suprachiasmatic nucleus**, functions as an intrinsic clock. Cells within this nucleus show **circadian rhythms** in metabolic and electrical activity, and in neurotransmitter synthesis, and appear to keep the rest of the brain on a day–night cycle.

Ref: Waxman S.G. (2010). Chapter 9. Diencephalon. In S.G. Waxman (Ed), Clinical Neuroanatomy, 26e.

985. Fear of strangers -

a) Algophobia

b) Xenophobia

c) Mysophobia

d) Thanatophobia

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

- Fear of stangers is xenophobia

986. Post traumatic stress-disorder is associated with all except:

a) Flash back

b) Severe traumatic injury

c) Re-experiencing stressful events

d) It does't develop after 6 months of stress

Correct Answer - D
D i.e. It does not develop after 6 months of stress

987. Which is a late side effect of typical anti psychotics?

a) Parkinsonism

b) Tardive dyskinesia

c) Acute muscular dystonia

d) Akathasia

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

988. Risk factor for suicide in depression are all EXCEPT:

a) Female

b) Male > 45

c) Child with conduct disorder

d) Family

Correct Answer - A

Female REF: Kaplan and sadock's synopsis in psychiatry 10th ed p. 529

Risk factors of suicide in depression are:

- At end(involutional) or beginning of depression
- Mood disorders , personality disorders , psychosis , hypochondriac
- >45yrs male, unemployed, single, divorced, chronically ill, widowed, recently bereaved
- Family history

989. Delusion is a disorder of:
September 2011

a) Stream of thought

b) Form of thought

c) Content of thought

d) Possession of thought

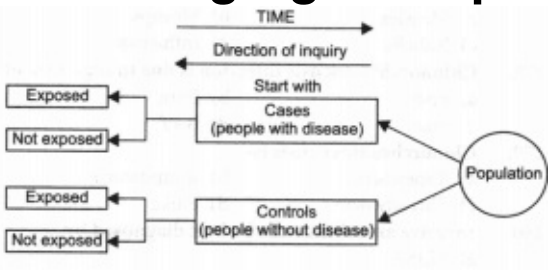
Correct Answer - C
Ans. C: Content of thought
In clinical examination, "thought" is assessed mainly under 2 headings of stream and form and content of thought. In Content of thought, one looks for any preoccupations such as obsessions, contents of phobias, delusions etc. Terminology in psychiatry:

- Illusion: Misinterpretation of stimuli arising from external object
- Hallucination: Perception without stimuli
- Delusion: False unshakeable belief not amenable to reasoning

Delusion:

- Disorder of thought
- Nihilistic delusion: Depression
- Delusion of grandeur: Mania
- Paranoid delusion and delusion of reference: Schizophrenia

990. Following figure represents -



a) Ecological study

b) Cross sectional study

c) Cohort study

d) Case-control study

Correct Answer - D

Ans. is 'd' i.e., Case-control study [Ref: Park 23rd/e p. 71-73 & 22"/e p. 68]

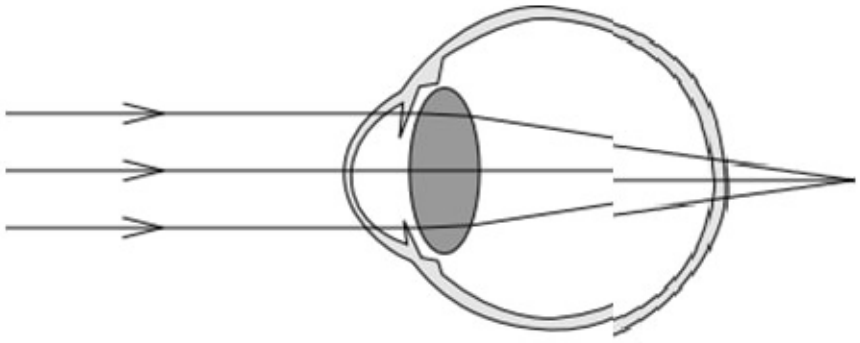
In case control study

- Direction of study → Reverse
- Time Forward

In cohort study

- Direction of study → Forward
- Time Forward

991. Identify the error of refraction depicted in the image -



a) Myopia

b) Hypermetropia

c) Presbyopia

d) Astigmatism

Correct Answer - B

Answer- B. Hypermetropia

- Image shows parallel rays of light coming from infinity and focused behind the retina with an inverted image. So the error of refraction is hypermetropia.

invalid question id