

# 1. Nerve supply of supinator is similar to which of the following muscle

a) Brachialis

b) Brachioradialis

c) Extensor digitorum

d) Pronator quadratus

Correct Answer - C

**Ans: C. Extensor digitorum**

- Here 2 answers are more probable for right answers.
- **Extensor digitorum > Brachioradialis.**
- Supinator, extensor digitorum (option c) and brachioradialis (option b) are supplied by radial nerve.
- Extensor digitorum as both supinator & extensor digitorum - Supplied by posterior interosseous nerve.
- Posterior interosseous nerve - Branch of radial nerve.
- Brachioradialis - Directly supplied by radial nerve.

## 2. Tensor fascia lata is supplied by

a) Superior gluteal nerve

b) Inferior gluteal nerve

c) Nerve to quadratus femoris

d) Sciatic nerve

Correct Answer - A

**Ans: A. Superior gluteal nerve**

**Tensor fasciae latae:**

- **Origin:** Outer lip of iliac crest, anterior superior iliac spine.
- **Insertion:**
- Iliotibial tract.
- Attached below to Clercy's tubercle on lateral tibial condyle.
- **Nerve supply:**
- Superior gluteal nerve
- **Actions:**
- Abducts & medially rotates thigh - Via iliotibial tract extending knee.
- Helps to maintain erect attitude.

### 3. True about renal arterial system

a) Branches are end arteries

b) Anastomosis is at Interlobar arteries

c) Anastomosis is in arcuate branches

d) Blood supply in medulla is greater than cortex

Correct Answer - A

**Ans: A - Branches are end arteries**

- [Ref: Keith Moore Sth/e p. 309; Gray's 3gh/e p. 276-77; Last Anatomy LLth/e p. 287)

**Blood supply of kidney:**

- Each kidney is supplied by renal artery.
- Renal artery - Branch of abdominal aorta.
- Drained by renal vein to IVC.

**Vascular segments:**

- 5 in each kidney.
- Posterior, apical, upper anterior, middle anterior & lower.
- Branches of renal artery are end arteries.
- Thus no anastomosis in renal arterial system.

#### 4. Which of the following is derived from ectoderm

a) CNS

b) Gall bladder

c) Spleen

d) Respiratory tract

Correct Answer - A

**Ans: A. CNS**

**Derivatives of ectoderm:**

- Brain & CNS
- Neural Crest
- Adrenal Medulla
- Pharyngeal clefts
- Oligodendrocytes
- Lens (from surface E-)
- Iris muscles (Sphincter & dilator pupillae)
- Epithelium of cornea, conjunctiva outer
- Lids
- Renal pigment epithelium
- Sensory retina
- Membranous Labyrinth

**5. Structure passing deep to sacrococcygeal ligament [through sacral hiatus] are all except**

a) S5 nerve

b) Coccygeal nerve

c) Filum terminale

d) Internal pudendal artery

Correct Answer - D

**Ans: D Internal pudendal artery**

- IRef. Textbook of human anatomy Part-3 p. 811
- **Structures passing through sacral hiatus (deep to sacrococrygeal ligament) are :-**
- 5th sacral nerve
- Coccygeal nerve
- Filum terminale

## 6. Sacrotuberous ligament is pierced by

a) Perforating cutaneous nerve

b) Posterior femoral cutaneous

c) Superior gluteal nerve

d) Sciatic nerve

Correct Answer - A

**Ans: A Perforating cutaneous nerve**

**Sacrotuberous ligament (STL) -**

- Stabiliser of sacro-iliac joint.
  - Connects bony pelvis to vertebral column.
  - **Structure piercing via STL - Perforating cutaneous nerve.**
- Perforating cutaneous nerve:**
- Cutaneous nerve that arises from the 52 and 53 nerve roots of the sacral plexus.
  - Supplies lower medial part of buttock.

## 7. Structure piercing investing layer of deep cervical fascia in posterior triangle of neck

a) Spinal accessory nerve

b) Internal jugular vein

c) External jugular vein

d) Common carotid artery

Correct Answer - C

**Ans: C. External jugular vein**

(Ref: BDC Vol.-3 7th/p. 88-100)

**Posterior triangle of neck -**

- Posterior triangle is situated behind sternocleidomastoid muscle.

**Roof:**

- Formed by **investing layer of deep cervical fascia.**

**Structure piercing roof of posterior triangle are:**

**1. Four cutaneous branches of cervical plexus, viz:**

- Lesser occipital nerve (C2)
- Great auricular nerve (C2, C3)
- Transverse cervical nerve (C2, C3)
- Supraclavicular nerves (C3, C4)
- Pierces roof near middle of posterior border of sternocleidomastoid muscle.

**2. External jugular vein:**

- Crosses sternocleidomastoid obliquely under the cover of platysma.

**8. In a patient shown in the picture below, spinal cord ends at ?**



a) L1.

b) L2.

c) L3.

d) L4.

Correct Answer - C

**Ans:C.) L3.**

**The stage of life shown in the picture above represents neonate.**

In humans, the spinal cord stops growing in infancy and the end of the spinal cord is about the level of the third lumbar vertebra, or L3, at birth. Because the bones of the vertebral column continue to grow, by about 12 months of age, the end of the cord reaches its permanent position at the level of L1 or L2

## 9. To look right-left which joint is used

a) Atlanto-axial joint

b) Atlanto-occipital joint

c) Occipito-axial joint

d) C6-C7 articulation

Correct Answer - A

**Ans: A. Atlanto-axial joint**

- Movements permitted at atlanto-axial joints are side-to-side rotation of head (looking towards right-or left).

**10. To look right & left [side to side movement] which type of joint is involved**

a) Ellipsoid joint

b) Pivot joint

c) Saddle joint

d) Hinge joint

Correct Answer - B

**Ans: B. Pivot joint**

- Right to left movement occurs at atlanto-axial joint which is a pivot joint.

## 11. Pretrematic nerve of 1st pharyngeal arch is

a) Mandibular nerve

b) Trigeminal nerve

c) Glossopharyngeal nerve

d) Chorda-tympani

Correct Answer - D

**Ans: D. Chorda-tympani**

[Ref. Textbook of Human embryology 9th/e p. 712]

- **Nerve receiving branch from nerve of succeeding arch - Pre-trematic nerve.**
- **1st & 2nd pharyngeal arch.**
- Nerve of arch itself - Post-trematic nerve.
- Each arch is supplied by cranial nerve:  
**1st arch:**
- Mandibular branch of trigeminal (Pretrematic nerve is chorda tympani branch of facial nerve).
- **2nd arch:**
- Facial nerve (Pretrematic nerve is typanic branch ofglossopharyngeal nerve)

## 12. Medial rotator of thigh [hip joint] is

a) Gluteus maximus

b) Obturator externus

c) Obturator internus

d) Gluteus minimus

Correct Answer - D

**Ans: D Gluteus minimus**

[Ref BDC Vh/eVoL II p. 150 6 Vol. II Sth/e p. 150].

**Medial rotation of hip joint:**

- Tensor fasciae latae.
- Anterior fibres of glutei medius & minimus.

### 13. Inversion and eversion of foot occur at which joint

a) Subtalar

b) Tibiotalar

c) Inferior tibiofibular

d) Ankle

Correct Answer - A

**Ans: A Subtalar**

[Ref: BDC 7/e Vol. II p. 164 & VoL II 5h/e p. 162).

- Following joints take part in eversion and inversion :-
- **Principal joints:** Subtalar, talo-calcaneo-navicular.
- **Accessory joints:** Calcaneocuboid, talonavicular.

## 14. Froment's sign is due to

a) Ulnar nerve injury

b) Median nerve injury

c) Radial nerve injury

d) Intercostobrachial nerve injury

Correct Answer - A

**Ans: A Ulnar nerve injury**

(Ref: Maheshwari 4h/e p. 65)

**Ulnar nerve injury:**

- Adductor pollicis will be paralysed.
- Shows 'Froment's sign' or the 'book test'.

**Procedure:**

- The patient is asked to grasp a book between the thumb and index finger. Normally, a person will grasp a book firmly with the thumb extended, taking full advantage of the adductor pollicis and the first dorsal interosseous muscles.
- Patient will hold the book by using the flexor pollicis longus (supplied by the median nerve) in place of the inter-phalangeal joint of the thumb.
- This becomes more pronounced if the examiner tries to pull the book out while the patient tries to hold it.

## 15. Tongue muscles are derived from

a) Lateral plate mesoderm

b) Occipital myotome

c) Intermediate mesoderm

d) Cervical myotome

Correct Answer - B

**Ans: B Occipital myotome**

(Ref: BDC 6th/eVol. III p. 269-270)

**Development of the tongue:-**

**I. Epithelium:**

- Ant 2/3 -- lingual swellings of 1st arch and tuberculum impar.
- Post 1/3 -- large dorsal part of hypobranchial eminence, i.e, 3rd arch.
- Posterior most part -- small dorsal part of the hypobranchial eminence, i.e. 4th arch.

**II. Muscles:**

- **From occipital myotomes except palatoglossus which is derived from the 6th arch.**

## 16. Sacral-teratoma/sacrococcygeal teratoma is a derivative of

a) Primitive streak

b) Ectoderm

c) Hypoblasts

d) Cranial neuropore

Correct Answer - A

**Ans: A Primitive streak**

(Ref: Textbook of Human embryology 8th/e p.671)

**Gastrulation & Hensen's node:**

- In 2nd week - Gastrulation occurs ---> Establishes 3rd germ layer (mesoderm).
- Gastrulation begins with primitive streak formation in caudal region of epiblast.

**Primitive node or Hensen's node or primitive knot:**

- Thickening formed at cranial end of primitive streak.

**Sacrococcygeal formation:**

- Failure of Hensen's node to regress can lead to sacrococcygeal formation.
- Incomplete primitive streak regression → leaves caudal remnant → Sacrococcygeal teratoma.
- Arise from residual to totipotential cell rests (Hensen's node).
- Sacrococcygeal teratoma demonstrates tissue derived from all three cell layers.
- Contain varying proportions of mature & immature elements.

## 17. Lining epithelium of vagina is

a) Squamous epithelium

b) Columnar epithelium

c) Transitional epithelium

d) Secretory epithelium

Correct Answer - A

**Ans: A Squamous epithelium**

(Ref: Ramesh Babu p. 24]

- Vaginal mucous membrane is lined by nonkeratinized stratified squamous epithelium.

## 18. Mucous membrane of cervix is lined by

- a) Simple squamous epithelium
- b) Simple columnar epithelium
- c) Stratified squamous epithelium
- d) Ciliated columnar epithelium

Correct Answer - B

**Ans: B Simple columnar epithelium**

(Ref: Langman's Embryology 11'h/e p. 269)

- **Lining of uterine cavity** - Ciliated columnar epithelium.
- **Lining of cervical canal** - Simple (nonciliated) columnar epithelium

## 19. Rotter's lymph nodes are found between

a) Serratus anterior & Trapezius

b) Deltoid & Pectoralis major

c) Pectoralis major and Pectoralis minor

d) Latissimus dorsi and Serratus anterior

Correct Answer - C

**Ans: C. Pectoralis major and Pectoralis minor**

[Ref AICC cancer staging manual Vol. I p. 224]

- Rotter's lymph nodes - Small interpectoral lymph nodes located between pectoralis major & pectoralis minor muscles.
- Receive lymphatic fluid from muscles & mammary gland.
- Delivers lymphatic fluid to axillary lymphatic plexus.

## 20. Rotter's node is

a) Interpectoral nodes

b) Internal mammary LN

c) Supraclavicular LN

d) Infraclavicular LN

Correct Answer - A

**Ans: A Interpectoral nodes**

[Ref AICC cancer staging manual Vol. I p. 224]

- Interpectoral (Rotter's) lymph nodes - Small interpectoral lymph nodes located between pectoralis major & pectoralis minor muscles.

## 21. Shift to right in Oxygen dissociation curve is seen in all except:

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a) Increased PaCO<sub>2</sub>

b) Decreased PaCO<sub>2</sub>

c) Increase in 2, 3 DPG

d) Decreased pH

Correct Answer - B

Ans. **B**: Decreased PaCO<sub>2</sub>

Haemoglobin is the primary vehicle for transporting oxygen in the blood.

The oxygen carrying capacity is determined by the amount of haemoglobin present in the blood. Oxygen is also carried dissolved in the blood's plasma, but to a much lesser degree.

A hemoglobin molecule can bind up to four oxygen molecules in a reversible way.

The oxygen-hemoglobin dissociation curve has a sigmoidal or S-shape.

The partial pressure of oxygen in the blood at which the hemoglobin is 50% saturated, is known as the P50. The P50 is a conventional measure of hemoglobin affinity for oxygen. An increased P50 indicates a rightward shift and a decreased affinity of the standard curve, which means that a larger partial pressure is necessary to maintain a 50% oxygen saturation. Conversely, a lower P50 indicates a leftward shift and a higher affinity.

**Left shift of the curve is a sign of hemoglobin's increased affinity for oxygen (e.g. at the lungs). Similarly, right shift**

**shows decreased affinity, as seen in:**

- An increase in body temperature,
  - An increase in hydrogen ion,
  - An increase in 2, 3-bisphosphoglycerate
  - An increase in carbon dioxide concentration (the Bohr effect)
- With fetal hemoglobin, the shift facilitates diffusion of oxygen across the placenta. The oxygen dissociation curve for myoglobin exists even further to the left.

**22. Ion which promotes glucose absorption in the gut region:**  
***September 2007***

a) Cl ?

b) K<sup>+</sup>

c) Na<sup>+</sup>

d) Ca<sup>2+</sup>

Correct Answer - C

Ans. C: Na<sup>+</sup>

Glucose enters cells by facilitated diffusion or, in the intestine and kidneys, by secondary active transport with Na<sup>+</sup>. In muscle, fat, and some other tissues, insulin facilitates glucose entry into cells by increasing the number of glucose transporters in the cell membranes.

The glucose transporters that are responsible for facilitated diffusion of glucose across cell membranes are a family of closely related proteins that cross the cell membrane 12 times and have their amino and carboxyl terminals inside the cell. They differ from and have no homology with the sodium-dependent glucose transporters, SGLT 1 and SGLT 2, responsible for the secondary active transport of glucose out of the intestine, although the SGLTs also have 12 transmembrane domains. Particularly in transmembrane helical segments 3, 5, 7, and 11, the amino acids of the facilitative transporters appear to surround channels that glucose can enter. Presumably, conformation then changes and glucose is released inside the cell.

**23.** Where does spermatozoa attain maturity during its passage?

a) Seminal vesicles

b) Epididymis

c) Testes

d) Prostate

**Correct Answer - B**

While passing through epididymis, sperm become motile and their surfaces and acrosomes undergo final maturation steps. Fluid within the epididymis contains glycolipid **decapacitation factors** that bind sperm cell membranes and block acrosomal reactions and fertilizing ability until the factors are removed as part of the capacitation process in the female reproductive tract.

**Ref:** Mescher A.L. (2013). Chapter 21. The Male Reproductive System. In A.L. Mescher (Ed), *Junqueira's Basic Histology*, 13e.

## 24. Spermatozoa gets its nutrition from

a) Glucose

b) Fructose

c) Galactose

d) Starch

Correct Answer - B

**Ans: B. Fructose**

(Ref KS Sanoop 3'd/e p.171)

- Nutrition to sperms is mainly provided by fructose.
- Fructose (f .5-6.5 mg/ml).

## 25. Testosterone secreted by,

a) Leydig's cells.

b) Somatotropic cells.

c) Acidophilic cells.

d) Gonadotropic cells

Correct Answer - A

Ans:A. Leydig's cells.

- The hypothalamus sends a signal to pituitary gland to release gonadotrophic substances (follicle stimulating hormone and luteinizing hormone).
- Luteinizing hormone (LH) stimulates testosterone production.
- Testosterone is produced by gonads (by Leydig cells in testes in men & by ovaries in women).

## 26. 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.

**27.** Inhibin inhibits secretion of which of the following hormone?

a) LH releasing hormone

b) LH

c) FSH

d) Estrogen and progesterone

**Correct Answer - C**

Inhibin is secreted by sertoli cells and is carried by blood to the anterior pituitary and possibly hypothalamus. This inhibin acts by negative feedback to inhibit secretion of FSH.

**The principal functions of Sertoli cells are:**

- Maintenance of blood testis barrier
- Secretion of tubular fluid
- Secretion of androgen binding protein
- Secretion of estrogen and inhibin
- Maintenance and coordination of spermatogenesis
- Phagocytosis of residual bodies of sperm cells

**Ref:** Human Embryology and Developmental Biology By Bruce M. Carlson page 20.

**28. Diffusion of lipid-insoluble substances across the cell membrane depends on all of the following except**

a) Hydrated radius

b) Electrical charge

c) Lipid solubility

d) Shape

Correct Answer - C

**Ans: C. Lipid solubility**

(Ref: Principle of medicalphysiolog p. 712).

- Simple diffusion of lipid-soluble substances
- The rate of diffusion through the lipid bilayer of the cell membrane is directly proportional to the solubility of a substance in lipids.
- Therefore, molecules of substances like oxygen, nitrogen, carbon dioxide, alcohol, steroid hormones and weak organic acids and bases, being lipid soluble, diffuse very rapidly through the lipid bilayer of the cell membrane.

## 29. Damage to which Brodmann area is responsible for motor aphasia

a) 22

b) 39

c) 40

d) 44

Correct Answer - D

**Ans: D. 44**

(Ref: Principles of medical physiology p. 713]

- Motor speech area (44. 45) - (Broca's area).
- **Location:** Inferior frontal gyrus.
- **Lesion & features:** Motor (Broca's/expressive) aphasia.

### 30. Functional residual capacity is:

a) Volume remaining after forced expiration

b) Tidal volume + volume inspired forcefully

c) Volume remaining after normal expiration

d) Tidal volume + volume expired by forced expiration

Correct Answer - C

C i.e. Volume remaining after normal expiration

### 31. Which of the following is the diluting segment of kidney?

a) PCT

b) Collecting duct

c) Ascending thick loop Henle

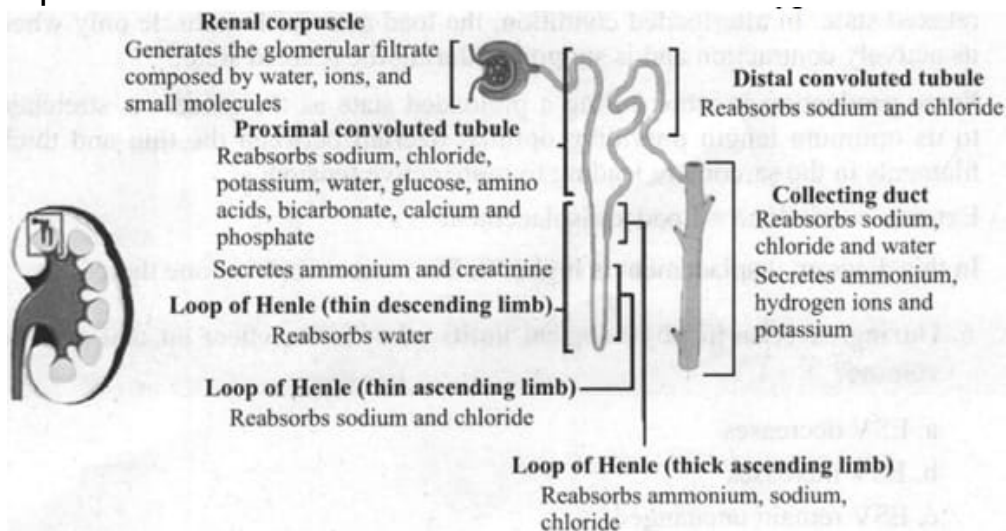
d) Descending loop of Henle

Correct Answer - C

**Ans. C. Ascending thick loop Henle**

*Ref: Ganong's Review of Medical Physiology, 21st ed., ch-37, pg. 684*

- TAL is permeable to solutes like  $\text{Na}^+$  and  $\text{Cl}^-$  and impermeable to water.
- The tubular fluid is diluted and becomes hypotonic as it reaches the top of the TAL.



**32. A 65 years old male is having weight 60kg and serum creatinine 3mg/dl. What is creatinine clearance [ml/ min]**

a) 5

b) 10

c) 15

d) 20

Correct Answer - D

**Ans: D. 20**

(Ref: Textbook of clinical nephrology 4<sup>th</sup>/e p. 136)

- Creatinine clearance is calculated by Cockcroft-Gault equation :-
- Creatinine clearance =  $[(140 - \text{Age in yrs}) \times \text{weight in kg}] / 72 \times \text{serum creatinine in mg/dl}$ .
- Creatinine clearance =  $[(140 - 65) \times 60] / 72 \times 3 = 20.83 \text{ ml/min}$

**Note:**

- In females the values are multiplied by 0.85.
- Thus, for same values, creatinine clearance in female of 65 years = 17.7 (20.83 x 0.85).

### 33. 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, asparaginase (cancer chemotherapy) and nephrotic syndrome.

### 34. 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.

### 35. Hand-eye coordination is controlled by

a) Premotor cortex

b) Pre-sensory cortex

c) Posterior parietal cortex

d) Frontal eye field

Correct Answer - A:C

**Ans: 'c > a'i.e., Posterior parietal cortex and Premotor cortex**

[Rel Brain Mapping: An encyclopedia 3d/e p. 471)

**Human posterior-parietal cortex (PPC) regions include :-**

1. Posterior intraparietal sulcus (PIPS): Involved in the processing of visual motion, orientation and depth
2. Superior parieto-occipital cortex (SPOC): Involved in visual guided reaching and. Hand-eye coordination
3. Parietal eye field (PEF) : Involved in eye movements

### 36. All of the following are stress responses except

a) Increased ANS activity

b) Increased peripheral insulin resistance

c) Decrease in blood glucose

d) Loss of muscle protein

Correct Answer - C

**Ans: C. Decrease in blood glucose**

[Ref: Understanding of medical physiology p. 470, 471].

Neuroendocrine secretions cause following metabolic disturbances during stress: -

**Protein catabolism:**

- Most important metabolic change in the stress.
- Results in anemia, hypoproteinemia & loss of lean body mass (mainly muscle proteins).
- Most important hormone - Cortisol.

**Hyperglycemia:**

- Suppression of insulin secretion coupled with increased secretion of glucagon, growth hormone, glucocorticoids (cortisol), and catecholamines (epinephrine, norepinephrine) leads to hyperglycemia.

**Increased Plasma FFA level:**

- Increased lipolysis leading to elevated plasma FFA level is the result of suppression of insulin secretion as well as increased secretion of cortisol, GH and catecholamines.

**Salt and water retention:**

- Due to elevated secretion of ADH and aldosterone (Renin-angiotensin-aldosterone system).



**37. Cerebellar connection to other parts of the brain is projected through which cell:**

a) Golgi cells

b) Basket cells

c) Purkinje cells

d) Oligodendrocytes

Correct Answer - C  
C i.e. Purkinje cells

**38. Common precursor of mineralocorticoid, glucocorticoids and sex steroids ?**

a) Pregnenolone

b)  $\alpha$ -hydroxyprogesterone

c) Dehydrotestosterone

d) Deoxycortisol

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

### 39. Peripheral chemoreceptors respond to hypoxia using which channel?

a) Calcium channel

b) Sodium channel

c) Potassium channel

d) Chloride channel

Correct Answer - C

Ans:C. Potassium channel.

- Carotid bodies are composed of glomus cells (also called type I), which are of neuronal phenotype and contain a variety of neurotransmitters.
- Glomus cells are in functional contact with the afferent nerve endings.
- Glomus cells are initial site(s) of sensory transduction.
- Hypoxia releases transmitter(s) from glomus cells, which in turn by depolarizing the sensory nerve ending leads to an increase in sensory discharge.
- One hypothesis assumes that a K<sup>+</sup>-channel protein is an O<sub>2</sub> sensor and that hypoxia depolarizes glomus cells by inhibiting the K<sup>+</sup> channel, leading to an increase in cytosolic Ca<sup>2+</sup>, resulting in transmitter(s) release.

## 40. Half life of T4 is

a) 20 minutes

b) 12 hours

c) 1 day

d) 6 days

Correct Answer - D

**Ans: D. 6 days**

(Ref: Ganong 25th/e p. 338-341; Understandings of medical physiology p. 719)

- Half life of T3 = 1 day
- Half life of T4 = 6 days.

## 41. Premature ejaculation phase is seen in –

a) Excitement phase

b) Plateau phase

c) Orgasm phase

d) Refractory phase

Correct Answer - C

**Ans. C. Orgasm phase**

- The male sexual response is described as a sequence of phases including 4 stages: sexual desire, arousal, orgasm (ejaculation) and resolution.  
**The male sexual dysfunction usually occurs in one or more of the three first stages of the sexual response cycle, including:**
- Dysfunctions of sexual desire (e.g. hypoactive sexual desire)
- Arousal (e.g. erectile dysfunction)
- Orgasm/ejaculation (e.g. premature ejaculation, retarded ejaculation or inability to ejaculate).
- Premature ejaculation occurs due to the rapid evolution of the two first stages of the sexual response cycle and is not necessarily related to strong sexual arousal or changes in erection.
- Premature Ejaculation seems to be a neurobiological problem that is related to low serotonin levels in those regions of the central nervous system that regulate ejaculation (brain and spinal cord).

## 42. Intracellular vesicle targeting, docking and fusion is done by which of the following

a) Rho

b) P 2 x 3

c) Rab

d) Ras

Correct Answer - C

**Ans: C. Rab**

- [Rel Textbook of cell and molecular biolog p. 786]
- **Small GTPase family:**
- G proteins are divided into two groups, with a major family being the small G proteins or small GTPases (20 - 40 kDa).
- **Rab functions:** Intracellular vesicle targeting. docking and fusion.

### 43. Which of the following results in increase in secretion of ADH?

a) Hypervolemia

b) Hypertension

c) Hypovolemia

d) Decrease osmolarity

Correct Answer - C

**Ans: C Hypovolemia**

Ref: Guyton 12th/e p. 9051

- Hypovolemia (Decreased ECF) stimulates the release of ADH.
- **Vasopressin secretion is increased by:** - i) Increased osmolarity (osmotic pressure) of plasma; ii) Decreased ECF volume; iii) Pain, emotion, stress, exercise; iv) Nausea and vomiting; v) Standing; vi) Clofibrate, Carbamazepine; vii) Angiotensin II.

#### 44. Location of GLUT 5 is

a) RBC

b) Liver

c) Small intestine

d) Placenta

Correct Answer - C

**Ans: C Small intestine**

(Ref: Ganong 25'h/e p. 433)

- GLUT 5 - Fructose transport - Jejunum, sperm

## 45. BRD4 is required for stimulating kinase activity of

a) P-TEFB

b) HEXIMI

c) HOX-B

d) TSKsnRNA

Correct Answer - A

**Ans: A P-TEFB**

- Bromodomain-containing protein 4 is a protein that in humans is encoded by the BRD4 gene.
- The C-terminal domain of Bkd4 has been implicated in promoting gene transcription through interaction with the transcription elongation factor P-TEFb.

**46. The hormonal factor responsible for circadian rhythm is formed from which amino acid?**

a) Tyrosine

b) Tryptophan

c) Phenylalanine

d) Histidine

Correct Answer - B

**Ans. is 'b' i.e., Tryptophan [Ref Harper 30th/e p. 319]**

- In circadian rhythm maintenance melatonin is involved which is derived from tryptophan.
- Tryptophan is a precursor for synthesis of niacin (nicotinic acid), serotonin and melatonin.

## 47. Glycine is present in all except?

a) Creatine

b) Purine

c) Glutamine

d) Glutathione

Correct Answer - C

**Ans. is 'c' i.e., Glutamine**

[Ref Harper 30<sup>th</sup>/e p. 316; Dinesh puri Vie p. 353] Glycine

- It is a nonessential amino acid which is synthesized from serine
- Glycine is necessary for the formation Heme, purine ring, bile acids conjugation (formation of glycocholic acid, and glycochenodeoxycholic acid), creatine, glutathione, glucose (by gluconeogenesis).

## 48. HMG-CoA can be directly converted to all except?

a) Acetoacetate

b) Acetyl-CoA

c) Mevalonate

d) Aceto-acetyl CoA

Correct Answer - D

**Ans. is 'd' i.e., Aceto-acetyl CoA**

[Ref Vasudevan ele p. 143; Harper 30<sup>th</sup>/e p. 226-228]

- Acetoacetate & Acetyl - CoA are derived from HMG-CoA during ketogenesis by HMG-CoA lyase which breaks the HMG-CoA into acetoacetate and acetyl-CoA during ketogenesis.
- Mevalonate is formed directly from HMG-CoA in cholesterol synthesis.
- HMG-CoA is converted to mevalonate by HMG-CoA reductase, the key regulatory enzyme of cholesterol synthesis.

## 49. Attachment site of miRNA to inhibit gene expression?

a) 3' end of mRNA

b) 5' end of mRNA

c) Binding to sigma factor

d) Cap binding protein

Correct Answer - A

**Ans. is 'a' i.e., 3' end of mRNA**

[Ref Lippincott's 5<sup>th</sup>/e p. 422-424; Harper's 30<sup>th</sup>Ve p. 409 e<sup>tr</sup> 29<sup>th</sup>Ye p. 81; Molecular biology by Lodish W<sup>h</sup>ie p. 348]

- Dicer (cytoplasmic enzyme) produce mi-RNA duplex, i.e. double stranded miRNA.
- It unwinds and one strand of this duplex is incorporated into RNA induced silencing complex (RISC), which help in gene regulation.
- miRNA (RISC) then recognize target sequences in the 3' untranslated region of mRNA for complementary base pairing.
- Base-pairing directs RISC to either cause mRNA cleavage or repress its translation.

## 50. What is the basis of sorting X-chromosome bearing and Y-chromosome bearing sperm?

a) X-chromosome has 2.8% more DNA

b) Y-chromosome has 2.8% more DNA

c) X-chromosome has 0.28% more DNA

d) Y-chromosome has 0.28% more DNA

Correct Answer - A

**Ans. is 'a' i.e., X-chromosome has 2.8% more DNA**

[Ref [www.sciencedirect.com](http://www.sciencedirect.com); Textbook of Human reproductive biology 4<sup>th</sup>/e p. 169]

- A sperm-sorting technology (the microsort method) is the most effective procedure yet devised at separating X-bearing and Y-bearing sperm.
- X sperm have only 2.8% more DNA than those carrying a Y chromosome,
- fluorescent dye that attaches to DNA and glows under laser light in sperm sorter then separates the sperm, sending X sperm down one tube and Y sperm into another.
- The sorted sperm can then be placed in the woman's uterus (artificial insemination) or used for in vitro fertilization.

## 51. Reverse transcription causes synthesis of?

a) RNA from DNA template

b) DNA from RNA template

c) RNA from RNA template

d) DNA from DNA template

Correct Answer - B

**Ans. is 'b' i.e., DNA from RNA template**

[Ref Harper 30/e p. 364]

- According to the central dogma, information flows from DNA to RNA to protein, Exception to central dogma of molecular biology is reverse transcription.
- reverse transcription refers to reverse of transcription, i.e. synthesis of double stranded DNA from RNA.
- catalyzed by enzyme reverse transcriptase which uses RNA template to synthesize DNA, thus called RNA dependent DNA polymerase.
- For eg- Retroviruses (e.g. HIV) carry RNA as their genetic material which is used to synthesize DNA by reverse transcriptase.

## 52. Reverse transcription involves ?

a) RNA dependent DNA synthesis

b) DNA dependent RNA synthesis

c) DNA dependent DNA synthesis

d) RNA dependent RNA synthesis

Correct Answer - A

**Ans. is 'a' i.e., RNA dependent DNA synthesis**

[Ref Harper's 30<sup>th</sup>/e p. 364 & 29<sup>th</sup>/e p. 348]

## 53. Telomerase is ?

a) DNA dependant RNA polymerase

b) RNA dependant DNA polymerase

c) RNA dependant RNA polymerase

d) DNA dependant DNA polymerase

Correct Answer - B

### **Telomers and Telomerase**

Telomers are short repeated sequences of DNA present at the end of eukaryotic chromosomes.

In normal cells, telomeres get shortened in each replicated cycle.

After the telomers get shortened by a critical length, cell stops dividing and enters into Go phase (sencence).

However, germ cells, cancer cells and stem cells have an enzyme telomerase (telomerase activity) which prevents telomer shortening. Thus telomers are not shortened in these cells, and therefore these cells have ability to self replicate extensively.

Telomerase is a reverse transcriptase (RNA dependent DNA polymerase) and is responsible for telomer synthesis and maintaining the length of telomers (replication of end of chromosome).

Thus, telomerase provide longetivity to the cells which contain this enzyme.

Telomerase is absent from most of the somatic cells and hence they suffer progressive loss of telomers and they exit the cell cycle.

## 54. True about ribozyme is ?

a) A protein

b) Catalytic RNA

c) Helps in esterification

d) Peptide bond formation

Correct Answer - B:D

**Ans. is `b > d' i.e., Catalytic RNA and Peptide bond formation**

[Ref Harper 30<sup>th</sup> ed p. 367, 348, 305]

- Two important RNA enzymes or ribozymes are the peptidyl transferase that catalyzes peptide bond formation on the ribosome and ribozymes involved in the RNA splicing.

## 55. True about sigma factor?

a) Subunit of 50s ribosome

b) Subunit of DNA polymerase

c) Subunit of RNA polymerase

d) Initiates DNA replication

Correct Answer - C

**Ans. is 'c' i.e., Subunit of RNA polymerase**

*[Ref Lippincott]*

- Sigma factor (sigma subunit) is a subunit of RNA polymerase.
- It is involved in initiation of transcription (RNA synthesis) in prokaryote (not DNA replication).

## 56. Alcohol/ethanol induced fatty liver is caused by increased in ratio of?

a)  $\text{NAD}^+$  to NADH

b) NADH to  $\text{NAD}^+$

c) NADPH to  $\text{NADP}^+$

d)  $\text{NADP}^+$  to NADPH

Correct Answer - B

**Ans. is 'b' i.e., NADH to  $\text{NAD}^+$**

[Ref: Pankaj Naik 3<sup>rd</sup>/e p. 351]

- Ethyl alcohol (ethanol) is readily absorbed from GIT and degraded by oxidation (oxidative process).
- Liver is the major site for ethanol oxidation.
- Excess alcohol intake leads to excessive production of NADH with a concomitant decrease in  $\text{NAD}^+$  which causes Hypoglycemia, Inhibition of  $\beta$ -oxidation of fatty acids and citric acid cycle, Increased lipogenesis, Accumulation of lipids, Lactic acidosis and hyperuricemia.

## 57. True regarding ubiquitin is:

a) Product of purine metabolism

b) Protein destructions

c) Present in prokaryotes

d) Protein synthesis

Correct Answer - B

There are two major pathways of protein degradation in eukaryotes. One involves lysosomal proteases and does not require ATP. The other way involves ubiquitin and is ATP-dependent. Ubiquitin is a small, highly-conserved regulatory protein that is ubiquitously expressed in eukaryotes.

Ubiquitination (or ubiquitylation) refers to the post-translational modification of a protein by the covalent attachment (via an isopeptide bond) of one or more ubiquitin monomers. The most prominent function of ubiquitin is labeling proteins for proteasomal degradation.

## 58. The serine proteases do not include

a) Pepsin

b) Trypsin

c) Elastase

d) Chymotrypsin

Correct Answer - A

## 59. Keshan disease is due to deficiency of

a) Selenium

b) Copper

c) Zinc

d) Iron

Correct Answer - A

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

- Keshan disease
- Cardiomyopathy associated with selenium deficiency.
- Wilson disease
- Autosomal recessive.
- Defective metabolism of copper leads to copper toxicity.
- Deficiency of ceruloplasmin.
- Presence of KF ring in cornea.
- Acrodermatitis enteropathica
- Deficiency of zinc.
- Dermatitis of extremities & around orifices.

## 60. Mucopolysaccharide/proteoglycans present in eye are?

a) Keratan sulfate & dermatan sulfate

b) Dermaton sulfate & heparan sulfate

c) Dermaton sulfate & chondroitin sulfate

d) Keratan sulfate and chondroitin sulfate

Correct Answer - D

**Ans. is 'd' i.e., Keratan sulfate and chondroitin sulfate**

*[Ref Dineshpuri Vie p. 31-32; Pankaj Naik 5<sup>1\*</sup> p. 29]*

- Keratan sulfate and chondroitin sulfate are present in cornea. Hyaluronic acid is present in vitreous humor.
- Keratan Sulphate is the only proteoglycan that does not contain acid sugar in disaccharide repeat unit. Instead it contains D-galactose (simple sugar) in place of acid sugar.

## 61. Amino-acid expressed maximally in collagen?

a) Tyrosine & phenylalanine

b) Alanine & aspartic acid

c) Glycine & cysteine

d) Proline & hydroxyproline

Correct Answer - D

**Ans. is `d' i.e., Proline & hydroxyproline**

*[Ref Harper's 30<sup>th</sup>/e p. 629 & 28<sup>th</sup>/e p. 527, 530]*

- Glycine (33%), proline (10%), hydroxyproline, lysine and hydroxylysine are the predominant amino acids in collagen. Collagen.

## 62. True about hybridoma is all except?

a) In-situ hybridization

b) DNA sequencing

c) Formation of monoclonal antibodies

d) Formation of continuous cell line

Correct Answer - A

Ans. is 'a' i.e., In-situ hybridization

[Ref Pankaj Naik 3/e p. 109; Textbook of molecular biology 7<sup>th</sup>/e p. 1131]

- Hybridomas are cells that have been engineered to produce a specific antibody in huge numbers.
- two types of cells have to be combined together i.e. cells which can produce large amount of pure antibody. And Cells which have the ability to grow continually, These two types of cells are then fused together to form hybridoma.

**63. Which of the following pathway is seen in basal cell carcinoma**

a) mTOR

b) Sonic Hedgehog

c) WNT

d) RAS

Correct Answer - B

Answer- B. Sonic Hedgehog

**Basal cell carcinoma**

**Locally aggressive tumor**

- Associated with mutations which activate Hedgehog pathway signalling.
- Gorlin syndrome is associated with gene PTCH, a tumor suppressor gene
- PTCh is receptor for Sonic hedgehog, which determines polarity during embryonic development.
- Basal cell carcinoma presents as pearly papules.

## 64. Classical pathway macrophage activating molecule

a) IFN gamma

b) IL 4

c) IL 13

d) IL1

Correct Answer - A

Answer- A. IFN gamma

- There are two major pathways of macrophage activation:
- Classical macrophage activation- induced by microbial products, which engage toll like receptors & other sensors, by T cell derived signals, importantly the cytokine IFN- $\gamma$
- Alternative macrophage activation - induced by cytokines IL4 & IL13 produced by T lymphocytes & other cells. Their main function is tissue repair & secrete growth factors which cause angiogenesis, activate fibroblasts & stimulate collagen synthesis.

## 65. T<sub>1/2</sub> of Haptoglobin complex is

a) 5 days

b) 3 days

c) 10 days

d) 10 minutes

Correct Answer - D

Answer- D. 10 minutes

- Hemoglobin-haptoglobin complexes are rapidly cleared from circulation via monocytes and tissue macrophages via CD163 receptors 15.
- Free haptoglobin has a half-life of 5 days, whereas hemoglobin-haptoglobin complexes have a half-life of 16minutes.

## 66. Free radical scavenging system enzyme is

a) NADPH oxidase

b) Glutathione peroxidase

c) Endonuclease

d) Phospholipase

Correct Answer - B

Answer-B. Glutathione peroxidase

Antioxidant mechanisms

1. Non-enzymatic system

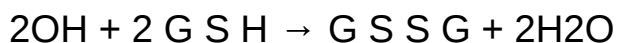
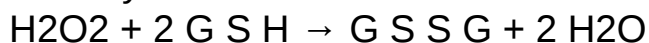
- Antioxidants (Vit E , Vit A, Vit C, glutathione and Cysteine)
- Tissue proteins (transferrin, ferritin, laetofeftifl, and ceruloplasmin).

2. Enzymatic system

- Catalase
- Supuoxide damutase (SOD)

3. Glutathione peroxidase

- Present in mitochondria & cytosol.
- It catalyzes free radical breakdown.



## 67. Alpha-1 antitrypsin acts to prevent lung tissue destruction by

- a) Inhibiting the release of trypsin
- b) Inhibiting the activation of trypsinogen
- c) Inhibiting the release of chymotrypsin
- d) Inhibiting the elastase of neutrophils in lung

Correct Answer - D

Answer- D. Inhibiting the elastase of neutrophils in lung

The most accepted theory in the pathogenesis of emphysema is protease - antiprotease mechanism which is responsible in the pathogenesis of two common forms of emphysema, i.e. centriacinar and panacinar.

A) Pathogenesis of panacinar emphysema

- Panacinar emphysema is associated with congenital deficiency of alpha 1-antitrypsin.
- Neutrophils are the major cell in the pathogenesis of panacinar emphysema.

B) Pathogenesis of centriacinar emphysema in centriacinar emphysema, both neutrophils and macrophages play central role.

**68. Which of the following collagen is involved/expressed in early wound healing**

a) Type 1

b) Type 2

c) Type 3

d) Type 4

Correct Answer - C

Answer- C. Type 3

- In wound healing earliest collagen to be deposited is type - 3 collagen along with fibronectin. Their deposition starts within 10 hours to 3 days and deposition peaks between 1 to 3 weeks.
- Later type - 3 collagen is replaced by type I collagen, which is more stronger.

**69. Misfolding of protein is associated with all of the following diseases in human, except**

a) Alzheimer's disease

b) Bovine spongiform encephalopathy

c) Scrapie disease

d) Parkinson's disease

Correct Answer - C

Answer- C. Scrapie disease

Scrapie disease occurs in animals.

**Prion proteins-**

- Creutzfeldt - Jakob disease (CID)
- Fatal familial insomnia
- Gerstmann-straussler-scheinker (GSS) syndrome
- Kuru

## 70. Misfolded amyloid deposition in brain is seen in

a) Creutzfeldt-jakob disease

b) Alzheimer's disease

c) HIV-encephalopathy

d) Gaucher's disease

Correct Answer - B

Answer- B. Alzheimer's disease

A Beta protein precursor (A Beta PP)-Alzheimer's disease

## 71. Leber hereditary optic neuropathy ELHUNI is caused by mutation in

a) Mitochondrial DNA

b) Nuclear DNA

c) Non-coding DNA

d) DNA dependent ribonucleosomes

Correct Answer - A

Answer- A. Mitochondrial DNA

- Mitochondrial DNA is the only non-chromosomal DNA in human cells. Mitochondrial DNA is always maternally inherited.
- Thus diseases caused by mutation in mitochondrial DNA are always inherited from mother to next generation.
- All children from affected mother will inherit the disease but it will not be transmitted from an affected father to his children

## 72. Which of the following causes vasoconstriction in all vascular beds

a) PGE2

b) PGF 2a

c) PGI2

d) TXA2

Correct Answer - D

Answer- D. TXA2

COX pathway is involved in the synthesis of prostaglandins and Thromoxane A2.

- Endothelium contains PGI2 synthase and thus forms PGI2
  - Platelets contain TXA2 synthase and therefore synthesize TXA2
- Blood vessels- Thromboxane A2 (TXA2)

### 73. Which of the following is autosomal dominant

a) Duchene muscular dystrophy

b) Cystic fibrosis

c) Myotonic dystrophy

d) Ataxia telangiectasia

Correct Answer - C

Answer-C. Myotonic dystrophy

- X-linked recessive disorders- Duchene muscular dystrophy (musculoskeletal)
- Autosomal recessive disorder-Cystic fibrosis (musculoskeletal)
- Autosomal recessive disorder- Ataxia telangiectasia (nervous)
- autosomal dominant disorder- Myotonic dystrophy (nervous)

## 74. E-cadherin mutation is seen in metastasis of which type of breast carcinoma

a) Infiltrative ductal Ca

b) Lobular Ca

c) Metaplastic Ca

d) Medullary Ca

Correct Answer - B

Answer- B. Lobular Ca

- Mutation in gene encoding for E-cadherin (CDH-1) is associated with gastric carcinoma and lobular breast carcinoma.
- Detachment of tumor cells is the first step in metastasis. Normally cells are glued to each other by adhesion molecules
- E-cadherin. Normal function of E-cadherin is dependent on catenins that helps in linkage of cytoskeleton to E-cadherin.
- Down regulation of expression of either E-cadherins or catenins results in loosening of cells that helps in metastasis.

## 75. Which of the following group represents negative acute phase proteins

a) Transferrin, albumin, transthyretin

b) Haptoglobin, CRP, albumin

c) Haptoglobin, ceruloplasmin, fibrinogen

d) CRP, a-1 antitrypsin, fibrinogen

Correct Answer - A

Answer- A. Transferrin, albumin, transthyretin

### **Acute phase reaction (acute phase response)-**

#### 1. Positive acute phase proteins

- Important examples are C-reactive protein : CRP (Beta 1- globulin), alpha-1 antitrypsin, fibrinogen, ferritin, serum amyloid A, hepatoglobulin, ceruloplasmin, and alpha-2 microglobulin.

#### 2) Negative acute phase proteins

- Important examples are albumin, prealbumin, transferrin, transcortin, transthyretin and retinal binding protein.

## 76. Antibodies against phospholipase A2 receptors are seen in

- a) Membranous GN
- b) Membrano proliferative GN
- c) Minimal change disease
- d) Focal segmental glomerulosclerosis

Correct Answer - A

Answer- A. Membranous GN

- Membranous glomerulonephritis, also known as membranous nephropathy, is a slowly progressive disease of the kidney.
- 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 A2 receptor.

**77. A 55 years old female patient is presenting with excessive menstrual blood loss and fecal blood loss. The diagnosis is**

a) Gardner syndrome

b) Turcot's syndrome

c) Lynch syndrome

d) None of the above

Correct Answer - C

Answer- C. Lynch syndrome

Lynch syndrome is characterized by colorectal, endometrium and ovarian carcinomas.

**Hereditary non-polyposis colorectal cancer (HNPCC) syndrome**

- It is also known as Lynch syndrome. It is characterized by increased incidence of colorectal cancer and extraintestinal cancers (ovary and endometrium).
- There is mutation in MSH2 and MLH1 genes required for DNA repair. This causes microsatellite instability.
- Colon cancer in these patients affect ascending (right) colon.

## 78. Sjogren syndrome is characterized by all except

a) Keratoconjunctivitis sicca

b) Excessive salivation

c) Splenomegaly

d) Lymphoma

Correct Answer - B

Answer- B. Excessive salivation

Sjogren syndrome is a chronic disease characterized by dry eyes (keratoconjunctivitis sicca) and dry mouth (xerostomia) resulting from immunological mediated destruction of the lacrimal and salivary gland.

### **Extraglandular**

- Raynaud's phenomenon
- Vasculitis
- Arthralgia/Arthritis
- Lymphadenopathy
- lymphoma
- Splenomegaly

### **Lung involvement**

- Kidney involvement
- Peripheral neuropathy

### **Myositis**

- Liver involvement

## 79. Durck granuloma is seen in

a) Brain

b) Spleen

c) Liver

d) Lymphnode

Correct Answer - A

Answer- A. Brain

- The major pathogenic mechanism of cerebral malaria is the sequestration of RBCs in cerebral vessels where they interfere with microcirculatory flow and metabolism.
- The softened areas are invaded by glial cells forming the so-called "malarial granulomas" of Durck result of a reparative reaction to local damage.

## 80. Liver biopsy in malaria will show -

a) Microabscesses

b) Kupffer cell hyperplasia

c) Piecemeal necrosis

d) Non caseating granuloma

Correct Answer - B

Answer-B. Kupffer cell hyperplasia

### **Microscopic findings of liver in malaria-**

- The kupffer's cells are increased in number and their cytoplasm are filled with malarial pigment (haematin) and parasitised erythrocytes.
- The parenchyma cells of the liver lying in the central zone show fatty degeneration, atrophy and necrosis.
- Fibrous tissue is not increased to any great extent.

## 81. Zellballen pattern on histopathology is observed in?

a) GIST

b) Astrocytoma

c) Carotid body tumor

d) Retinoblastoma

Correct Answer - C

Answer-C. Carotid body tumor

Paraganglioma are clusters of neuroendocrine cells (glomus cell) associated with the sympathetic and parasympathetic nervous system.

**Microscopic features of Paraganglioma are:**

- I. Composed of nests(zellballen) of round to oval chief cells (neuroectodermal origin)that are surrounded by delicate vascular septa.

## 82. Zellballen pattern is seen in

a) Paragangliomas

b) Pheochromocytom

c) Carotid by tumor

d) All of the above

Correct Answer - D  
Answer- D. All of the above

### 83. Salivary gland tumor exclusively seen in parotid gland

a) Warthin's tumor

b) Pleomorphic adenoma

c) Mucoepidermoid Ca

d) Adenoid cystic Ca

Correct Answer - A

Answer-A. Warthin's tumor

- "Warthin's tumor arises only in the parotid gland" - Textbook of surgery
- "Warthin's tumor arises almost exclusively in the parotid gland (the only tumor virtually restricted to the parotid)"
- Salivary gland tumor seen only in parotid gland- Warthin's tumor.

## 84. Myositis ossificans is an example of

a) Hypertrophy

b) Hyperplasia

c) Metaplasia

d) Both hyperplasia & hypertrophy

Correct Answer - C

Answer- C. Metaplasia

Metaplasia is a reversible change in which one differentiated cell type is replaced by another differentiated cell type

1. Epithelial metaplasia

2. Connective tissue metaplasia

- This transformation occurs between the mesodermally derived tissues i.e., one type of connective tissue is replaced by another type of connective tissue.
- This is characterized by conversion of fibroblast - derived soft tissue into muscle, Cartilage or bone.
- Example - Bone formation in muscle i.e., myositis ossificans.

## 85. Alpha-fetoprotein is a tumor marker for

a) Hepato cellular carcinoma

b) Multiple myeloma

c) Seminoma

d) Breast carcinoma

Correct Answer - A

Answer- A. Hepato cellular carcinoma

### **Alpha-feto protein (AFP)**

- AFP is a well established tumor marker
- It is a glycoprotein synthesized normally early in fetal life by the yolk sac, fetal liver and fetal GIT.

### **AFP is raised in -**

- Carcinomas > Liver Ca, Lung Ca, Colon Ca, Pancreatic Ca, Non-seminoma germ cell tumor of testis.
- Non-neoplastic conditions > Cirrhosis, Hepatitis, Pregnancy

## 86. Marker for seminoma testis is -

a) Alfa - fetoprotein

b) Carcinoembryonic antegens

c) HCG

d) Acid phosphatase

Correct Answer - C

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

Normally seminoma cells do not contain AFP and HCG.

- *"Approximately 15% of seminomas contains syncytiotrophoblasts which secret HCG" Robbin's 1042*
- Seminoma is positive for placental alkaline phosphatase and keratin.

## 87. Irreversible injury to myocardium in MI occurs earliest by

a) Few seconds

b) 10 minutes

c) 20 minutes

d) 40 minutes

Correct Answer - C

Answer- C. 20 minutes

- Myocardial function is more sensitive to ischemia (loss of contractility occurs within 60 seconds) than myocardial structure
- (irreversible injury occurs in 20-40 minutes), thus myocardial necrosis begins at approximately 30 minutes after coronary occlusion

**88. Barrett's esophagus is commonly associated with one of the following:**

a) Adenocarcinoma

b) Squamous cell carcinoma

c) Sarcoma

d) Gastrointestinal stromal tumor

Correct Answer - A  
Ans. is 'a' i.e. Adenocarcinoma

## 89. Calcium dependant cell adhesion molecule is

a) Cadherin

b) ICAM-1

c) L-selectin

d) Integrin

Correct Answer - A

Answer- A. Cadherin

- The cadherins are calcium-dependent adhesion molecules. The three most common cadherins are neural (N)-cadherin, placental (P) cadherin, and epithelial (E)-cadherin. All three belong to the classical cadherin subfamily. There are also desmosomal cadherins and proto-cadherins. Cadherins are intimately involved in embryonic development and tissue organization. They exhibit homophilic adhesion. The extracellular domain consists of several cadherin repeats, each is capable of binding a calcium ion. When calcium is bound, the extracellular domain has a rigid, rod-like structure.
- Following the transmembrane domain, the intracellular domain is highly conserved. The intracellular domain is capable of binding the alpha, beta, gamma catenins.

**90. A Schizophrenic patient is responding well to haloperidol. But, now he has developed symptoms of parkinsonism. What is the drug of choice to treat this condition -**

a) Levodopa

b) Bromocriptine

c) Tolcapene

d) Anticholinergic

Correct Answer - D

**Ans: D Anticholinergic**

- Extrapiramidal side effects of antipsychotics.
  - Major dose limiting side effects.
  - Maximum with haloperidol.
- Parkinsonism:**
- Appears between 1-4 weeks of therapy.
  - Central anticholinergics like benhexol are drug of choice for drug induced Parkinsonism.

## 91. Metyrosin is used in ?

a) Acromegaly

b) Cushing syndrome

c) Addison's disease

d) Pheochromocytoma

Correct Answer - D

**Ans: D Pheochromocytoma**

Ref: KDT 7/e p. 128, 129; Katzung 11th/e p. 941

- Rate limiting step (tyrosine hydroxylation) in synthesis of epinephrine is inhibited by metyrosine.

## 92. Which of the following decreasing preload

-

a) Hydralazine

b) Nifedipine

c) Nitroglycerine [glyceryl trinitrate]

d) Losartan

Correct Answer - C

**Ans: C .Nitroglycerine [glyceryl trinitrate]**

(Ref: KDT 7/e p. 522)

**Preload:**

- End-diastolic pressure when the ventricle is filled.
- Depends on venous return ) more the venous return, more is the preload.
- Drug which dilate veins will decrease the venous return and there by preload.
- Drugs which decrease the body fluid (diuretics) also decrease venous return and preload.
- Examples are - Nitrates

**93.** The genetic variation in drug metabolism pathway that results in severe toxicity of fluorouracil is:

a) CYP2C9

b) Dihydropyrimidine dehydrogenase

c) Thiopurine-S methyltransferase

d) CYP2D6

**Correct Answer - B**

Genetic variation in drug metabolism pathway dihydropyrimidine dehydrogenase results in severe toxicity of **capecitabine, fluorouracil**.

Dihydropyrimidine dehydrogenase (DPD) is the initial and rate-limiting enzyme in the catabolism of S-fluorouracil (S-FU).

Thus, patients with a DPD deficiency are at risk of developing severe S-FU-associated toxicity.

**Ref:** Harrison, Edition-18, Page-42.

## 94. Cyclosporine acts by inhibiting the proliferation of

a) IL1

b) IL2

c) IL6

d) Macrophages

Correct Answer - B

Ans. is 'b' i.e., IL2

- *Cyclosporine enters target cells and bind to cyclophilin (an immunophilin).*
- *This cyclosporine-cyclophilin complex inactivates calcineurin*
- *IL-2 trascriptan and proliferation of T cells.*

**95. Which of the following drug used in gout act by converting uric acid into allantoin ?**

a) Colchicine

b) Allopurinol

c) Probenacid

d) Rasburicase

Correct Answer - D

**Ans: D. Rasburicase**

**Drugs increasing metabolism of uric acid:**

- Urate oxidase metabolizes insoluble uric acid to soluble allantoin in the birds'.
- This enzyme is absent in humans.
- Rasburicase (a recombinant urate oxidase) is used for this Purpose.
- PEGylateil uricase (pegloticase) is another similar drug.

**96. Which of the following is orally active direct Xa inhibitor?**

a) Rivaroxaban

b) Aprotinin

c) Dabigatran

d) Bivalirudin

Correct Answer - A

Ans. a. Rivaroxaban

- Rivaroxaban, apixaban & edoxaban are factor Xa inhibitors.
- Dabigatran etexilate is direct thrombin inhibitor.

## 97. MOA of Teduglutide in short bowel syndrome?

a) GLP-2 inhibitor

b) HT1a inhibitor

c) GLP-1 analogs

d) C-peptide analogs

Correct Answer - A

Ans. A. GLP-2 inhibitor

- Glucagon-like peptide-2 (GLP-2) – Important intestinotrophic growth factor & mediator of intestinal adaptation.
- FDA approved teduglutide (Gattex—NPS) to treat short bowel syndrome in adult patients requiring additional nutrition from I.V. parenteral nutrition.
- Effectively improves fluid absorption.

## 98. Side effect of oral carbonic anhydrase inhibitors include ?

a) Weight gain

b) Insomnia

c) Hyperkalemia

d) Paresthesia

Correct Answer - D

**Ans: D. Paresthesia**

[Ref KDT Vh/e p. 5g7; Clinical pharmacology 8th/e p. 71g)

**Adverse effects of systemic/oral carbonic anhydrase inhibitors are:**

1. CNS effects: Lethargy, drowsiness, headache, seizures, and Paresthesias
2. GI effects: Nausea, vomiting, diarrhea, altered taste, and anorexia
3. Diuretic effect : Polyuria and increased thirst; fluid and electrolyte disturbances (hypokalemia, metabolic acidosis)
4. Worsening of liver disease : Precipitation of hepatic encephalopathy / hepatic coma and hepatic necrosis
5. Hypersensitivity reaction: In patients sensitive to sulfonamide (CAase inhibitors are sulfonamide derivatives)
6. Hyperuricemia: Precipitation of gout
7. Bone marrow depression: Rare

**99.** Tizanidine is a central alpha 2 adrenergic agonist.

**Assertion:** It is indicated in painful muscle spasms of spinal origin.

**Reason:** Because it inhibits the release of excitatory aminoacids in spinal interneurons.

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**

**Tizanidine** a recently introduced clonidine congener is a central alpha 2 adrenal agonist which inhibits the release of excitatory amino acids in spinal interneurons.

It also facilitate the inhibitory transmitter glycine.

*So it is indicated in painful muscle spasms of spinal origin.*

**Ref:** Essentials of Medical Pharmacology By K D Tripathi, 5th Edition, Page 318.

## 100. New Delhi metallo-Beta-lactamase enzyme confers resistance to which antibiotic?

a) Colistin

b) Amoxicillin

c) Carbapenems

d) Vancomycin

Correct Answer - C

**Ans: C. Carbapenems**

[Ref: Clinical pharmacology E Book p. 184]

**New Delhi metallo-beta-lactamase f (NDM-f):**

- An enzyme that makes bacteria resistant to a broad range of beta-lactam antibiotics.
- These include the antibiotics of the carbapenem family, which are a mainstay for the treatment of antibiotic-resistant bacterial infections.
- The gene for NDM- I is one member of a large gene family that encodes beta-lactamase enzymes called carbapenemases.
- Bacteria that produce carbapenemases are often referred to in the news media as "superbugs".
- Because infections caused by them are difficult to treat.
- Such bacteria are usually susceptible only to polymyxins and tigecycline.

## 101. Topical antibiotic of choice for MRSA

a) Mafenide

b) Silver sulfadiazine

c) Mupirocin

d) Butenafine

Correct Answer - C

**Ans: C. Mupirocin**

**Methicillin resistance staphylococcus aureus (MRSA):**

- Also be referred to as multi-drug resistant staphylococcus aureus or oxacillin resistant staphylococcus aureus (ORSA).
- Vancomycin is the systemic DOC for MRSA
- Mupirocin is topical antibiotic of choice.
- Other topical effective drug are fusidic acid and retapamulin.

## 102. Analgesic action of paracetamol is due to which receptors

a) NK1

b) BK1

c) TRPV-1

d) C2x3

Correct Answer - C

**Ans: C. TRPV-1**

(Ref: Oxford textbook of Palliative care for children p. 712)

- Paracetamol was shown to be converted in the brain and spinal cord through a process of deacetylation followed by conjugation with arachidonic acid to form N-arachidonoylphenolamine (AM404).
- AM404 is a known endogenous cannabinoid.
- Functions both as a potent activator of vanilloid subtype 1 receptors (TRPV-1).
- Inhibitor of cellular anandamide uptake.
- Increases other endogenous cannabinoids levels acting directly on cannabinoid-1 receptors (CB1).
- TRPV1 and CB1 receptors are present in pain and thermoregulatory pathways, giving paracetamol its analgesic and antipyretic actions.

**103. Drug used for Urinary incontinence [like Oxybutynin] in Neurogenic Bladder acts on which cholinergic receptors:**

a) M1

b) M2

c) M3

d) M4

Correct Answer - C

**Ans: C. M3**

- Cholinergic system stimulates detrusor and relaxes the trigone) → Increased micturation (M3 receptor).
- Selective M3 blockers:**
- Oxybutynin, Darifenacin, Solifenacin, Tolterodine):
  - Blocks M3 receptors in urinary bladder - Used in urinary incontinence.

**104. Which of the following ATT drugs is associated with visual deterioration**

a) INH

b) Rifampicin

c) Capreomycin

d) Ethambutol

Correct Answer - D

D i.e. Ethambutol

- The common agents which lead to toxic amblyopia or chronic retrobulbar neuritis are - *tobacco Q*, *methyl alcohol Q*, ethyl alcohol, lead, arsenic, *quinine Q*, carbon di sulphide, cannabis indica and *ethambutol Q*
- *Ethambutol is contraindicated in children below 6 yearsQ* because young children may be unable to report early visual impairment.
- Ethambutol amblyopia presents with *defective colour vision, reduced visual acuity and central or centrocaecal scotoma* but when optic chiasma is involved a bitemporal hemianopia develops.

## 105. Pilocarpine in eye causes -

a) Active miosis

b) Active mydriasis

c) Passive miosis

d) Passive mydriasis

Correct Answer - A

**Ans: A. Active miosis**

(Ref: KDT 7h/e p' 114 & 6th/e p 200)

- Miosis (constriction of PuPil)
- **Parasympathomimetic (muscarinic) drugs:**
- By stimulating the contraction of circular muscles (pupillary sphincter).
- As miosis is due to active contraction of muscle - Called "**Active miosis**".

## 106. GABA-B receptors are -

a) G-protein coupled receptors

b) Intrinsic ion channel

c) Enzyme linked receptors

d) Ligand gated ion channels

Correct Answer - A

**Ans: A. G-protein coupled receptors**

(Ref : KDT //e p. 399, 402 6 6h/e p. 395; Katzung 17th/e p' 377-378; IP/e p' 355)

**GABA-A receptors:**

- Intrinsic Cl<sup>-</sup> channels and when open cause increase in Cl<sup>-</sup> conductance and CNS depression.

**GABA-B receptors:**

- G-protein coupled receptors.
- Baclofen is agonist and saclofen is antagonist on these receptors.

## 107. GABA- B receptor is which type of receptor -

a) Inotropic receptor

b) Metabotropic transmembrane receptor

c) Ligand gated ion channel

d) Intrinsic ion channel

Correct Answer - B

**Ans: B. Metabotropic transmembrane receptor**

(Ref : KDT //e p. 399, 402 6 6h/e p. 395; Katzung 17th/e p' 377-378; IP/e p' 355)

**Metabotropic receptors:**

- Are G-protein coupled receptors which act through second messenger.
- Examples: GABA-B receptors, Muscarinic (M1 to M5)

## 108. Levodopa is contraindicated in-

a) Hypertension

b) Multiple sclerosis

c) Pheochromocytoma

d) Angle closure glaucoma

Correct Answer - D

**Ans: D. Angle closure glaucoma**

[Ref: clinical Pharmacology 8th/e p. 715).

**Contraindication of Levodopa**

1. Narrow angle glaucoma
2. Hemolytic anemia
3. Angina pectoris
4. Transient ischemic attack
5. History of melanoma or undiagnosed skin disease
6. Patients taking MAO inhibitors.

**109. Which of the following is a serious and characteristic adverse effect of Metformin**

a) Lactic acidosis

b) Weight gain

c) Hypoglycemia

d) Dilutional hyponatremia

Correct Answer - A

**Ans: A. Lactic acidosis**

[Ref: KDT 7h/e p. 453].

- Two important adverse effects of these agents are lactic acidosis (more with phenformin) and vitamin B12 deficiency (more common with metformin).
- More common side effects are abdominal pain, anorexia, metallic taste, mild diarrhea and tiredness.

## 110. IPC code related to infanticide ?

a) 302

b) 312

c) 317

d) 318

Correct Answer - A

**Ans. is 'a' i.e.,302**

[Ref SK Single L'Ve p. 268]

- Infanticide refers to killing a child after delivery, to till 1 year after birth.
- Infanticide in India is considered equivalent to murder and is tried under section 302 IPC. Law considers every child as born dead and therefore in a case of infanticide, it has to be proved that the child was born alive and was then killed.

**111.** A woman who gave birth 1 day ago left the child in a railway station. This was witnessed by porter in the station and later the mother apprehended. In such a scenario, she would be punishable under:

a) IPC 318

b) IPC 317

c) IPC 307

d) IPC 320

**Correct Answer - B**

If a father or mother of a child below the age of 12 years, or anyone having the care of such a child, leaves such a child in any place with the intention of *abandoning the child* shall be punishable with 7 years imprisonment as per section **317 IPC**.

IPC 318 deals with concealment of birth and is punishable with 3 years imprisonment.

IPC 307 deals with attempted murder.

IPC 320 deals with grievous hurt.

**Ref:** Textbook of Forensic Medicine and Toxicology by Narayan Reddy, Edition 21

## 112. Sections 312 to 315 deal with ?

a) Kidnapping & abduction

b) Attention & abetment to suicide

c) Causing grievous hurt

d) Criminal abortion

Correct Answer - D

**Ans. is D. i.e., Criminal abortion**

*[Ref The Essentials of forensic Medicine and toxicology 32<sup>nd</sup> ed ch. 17, p. 380]*

- 312, 313, 314 and 315 IPC : For causing voluntary miscarriage (criminal abortion).
- 312 IPC : Causing miscarriage with consent (3 years of imprisonment ± fine).
- 313 IPC : Causing miscarriage without consent of lady (10 years of imprisonment which can extend up to life ± fine).
- 314 IPC : Death of patient caused by miscarriage (10 years of imprisonment ± fine).
- 315 IPC : Death of child during miscarriage (10 years imprisonment ± fine).

**113.**

**Mr. X fired his gun at Mr. V who moved and escaped with the bullet only grazing his thigh. There was only a little bleeding without any significant injury. Mr. X is liable for arrest under which section of Indian Penal Code:**

a) 302

b) 304

c) 324

d) 326

Correct Answer - C

Ans: C. 324

- (Ref Reddy 34/e p275, 33/e p292)
- Usage of dangerous weapon for hurting - Under section 324 of IPC.

**Section Deals with**

302  
IPC      Punishment for murder°

304A      Causing death by negligence, punishment up to 2 years  
IPC      (medical negligence)

304B  
IPC      Dowry death°, punishment 7 years to life imprisonment

324  
1PC      Voluntarily causing hurt by dangerous weapons or means

326  
1PC      Voluntarily causing grievous hurt by dangerous weapons or means

**114. A statement recorded by the magistrate in front of the accused or his lawyer is known as?**

a) Summon

b) Punchnama

c) Dying deposition

d) Dying declaration

Correct Answer - C

**Ans. is 'c' i.e., Dying deposition**

*[Ref Reddy 30<sup>th</sup>/e p. 8, 9]*

- Dying declaration is the written or verbal statement made by a person likely to die because of some unnatural act done on his body, narrating the circumstances or the conditions responsible for his present state of health or the cause and manner of likely unnatural death.
- Dying deposition is the statement of a person on oath, recorded by the magistrate in the presence of the accused or his lawyer, who is allowed to cross-examine the witness. This procedure is not followed in India.

**115. A verbal statement recorded by magistrate without oath by an assaulted person narrating the sequence of events responsible for his condition, is called as ?**

a) Summon

b) Punchnama

c) Dying deposition

d) Dying declaration

Correct Answer - D

**Ans. is 'd' i.e., Dying declaration**

*[Ref Reddy 30<sup>th</sup> le p. 8, 9]*

## 116. Closure of sphenoccipital suture occurs at?

a) 16 years

b) 18 years

c) 25 years

d) 30 years

Correct Answer - B

**Ans. is 'b' i.e., 18 years**

*[Ref: Review of forensic Medicine & Toxicology by Biswas p.11]*

- Sphenoccipital suture marks the sphenoccipital synchondrosis, i.e., cartilaginous joint between basisphenoid and basiocciput.

## 117. Which of the following is followed while post-mortem examination of stomach?

a) Single ligation

b) Double ligation

c) Triple ligation

d) Directly cut open

Correct Answer - D

**Ans. is 'b' i.e., Double ligation**

*[Ref Parikh 6<sup>th</sup>/e p. 2.55]*

- During autopsy (post-mortem examination) of stomach, double ligatures are used.
- One at lower end of esophagus, i.e near the cardiac end of stomach, includes the lower 5 cms of esophagus  
**Second at pyloric end of stomach**
- The stomach is divided between these ligatures.
- After applying double ligatures, the stomach is opened along the greater curvature (from the cardiac end to pyloric end).  
**Important facts about the autopsy procedure**
- Depending on type of case, any of the body cavity can be opened first. Spinal cord is routinely not opened.
- It is convenient to start the examination with the cavity chiefly affected.

**118. Irresistible sexual desire in a male is known as:**  
**AIIMS 08**

a) Nymphomania

b) Tribadism

c) Satyriasis

d) Sadism

Correct Answer - C

Ans. Satyriasis

- *Satyriasis is excessive sexual desire in male where he enjoys having multiple sexual partners or desires excessive sexual activity. The female-specific term for the same condition is Nymphomania.*
  - A fetish is an abnormal stimulus or object of sexual desire.
  - Fetishism means the use of such objects of sexual gratification leading to orgasm. For example underclothing, brassiere, petticoat, stocking, shoes, etc.
- Frotteurism :
- Sexual satisfaction is obtained by rubbing against persons in crowd.
  - If they attempt intercourse, they have a premature ejaculation or they are impotent.
- It is an uncommon perversion and rarely occurs alone

**119. In Sodomy, passive agent is labelled as catamite when he/she is?**

a) Yong child

b) Women

c) Elderly

d) Any of the above

Correct Answer - A

**Ans. is 'a' i.e., Yong child**

*[Ref Perikh 6<sup>th</sup> le p. 5.55]*

- Sodomy is sexual intercourse through anus. It is of two types : Homosexual and Heterosexual.
- In Homosexual, it is done by a male on another male. Heterosexual sodomy is anal intercourse with a women.
- The person who does the act is known as active agent and the person, on whom the act is done, is known as passive agent.
- If the passive agent is adult/elderly the act is known as Gerontophilia.
- If the passive agent in sodomy is a child , act is called Paederasty, the passive agent is labelled as catamite, and the active agent is known as Paedophile.

**120. Raindrop pigmentation is seen in:**  
***Kerala 07; BHU 10; NEET 13***

a) Arsenic poisoning

b) Phosphorous poisoning

c) Mercury poisoning

d) Thallium poisoning

Correct Answer - A  
Ans. Arsenic poisoning

**121. Overriding of skull bones in in-utero death of a child is known as?**

a) Robert's sign

b) Spaulding's sign

c) Plocqnet's sign

d) Fodere's sign

Correct Answer - B

**Ans. is `b' i.e., Spaulding's sign**

*[Ref Parikh 6<sup>th</sup> le p. 5.75, 5.76]*

- Dead born : A deadborn child is one which has died in utero and shows one of the following signs after it is completely born

## 122. Principle of confidentiality [professional secrecy] is not applicable in?

a) Group discussion

b) Parents

c) Spouse

d) Criminal case

Correct Answer - D

**Ans. is 'd' i.e., Criminal case**

*Ref Reddy 30<sup>th</sup> le p. 29-31]*

- 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.

**123. Headache, behavioral changes, Schizophrenia, like psychosis, visual hallucination and paranoid symptoms are seen in intoxication / abuse of?**

a) Amphetamines

b) Cocaine

c) Cannabis

d) Heroin

Correct Answer - A

**Ans. is 'a' i.e., Amphetamines**

*[Ref Nimboodiri 3<sup>rd</sup> ed p. 334]* Amphetamines

- Amphetamine is a powerful CNS stimulator. It acts on norepinephrine release in brain, along with an action on release of dopamine and serotonin.

## 124. What is the mechanism of action of cholera toxin in the small intestine?

a) ADP-ribosylation of the G regulatory protein

b) Activation of guanylate cyclase

c) Inhibition of adenyl cyclase

d) Inhibition of protein synthesis

Correct Answer - A

**Cholera toxin** is an example of A-B model of toxins. B subunit of the toxin binds to the enterocyte receptors, active toxin subunit A activates adenylate cyclase of the intestinal epithelial cells by ADP ribosylation of the Gs subunit of the G protein of intestinal cells.

This prevents the G protein from being turned off, and result in excess production of cAMP. cAMP in turn act as a second messenger to activate protein kinase A, which intern activates the specific cell proteins that control secretion of electrolytes.

**Ref:** Textbook of Pathology By V. Krishna, Page 178; Medical Microbiology By Fritz H. Kayse, Page 298; Microbiology and immunology By Monica Gandhi, Page 45

## 125. Coxsackie group A does not cause ?

a) Conjunctivitis

b) Aseptic meningitis

c) Hepatitis

d) H.F.M.D

Correct Answer - B

Ans. is 'b' i.e., Aseptic meningitis

. Aseptic meningitis is caused by all types group B Coxsackie viruses and by many group 'A' Coxsackie viruses most commonly A7 and A9.

*History of fever and headache with neck stiffness suggest the diagnosis of meningitis. CSF analysis findings of increased opening pressure, mildly increased proteins, normal glucose, increased lymphocytes are highly suggestive of viral (Coxsackie virus) meningitis. Meningitis with normal glucose is highly suggestive of viral meningitis*

|                     | Normal  | Bacterial Meningitis | Viral Meningitis           | Typical CSF Profile                                 | Fungal Meningitis | Parasitic Meningitis |
|---------------------|---|----------------------|----------------------------|---|-------------------|----------------------|
| WBC count (per pL)  | <5  | >1000°               | 25-500°                    | 40-600  | 150-200           | 150-200              |
| Differential of WBC | 60-70% lymphocytes, 30% monocytes / macrophages | TiPMNs° (N30%)       | Predominantly lymphocytes° | Lymphocytes or PMNs, depending on specific organism | TT                | Eosinophil (50%/0)   |
| Gram's              | Negative  | Positive°            | Negative°                  | Rarely  | Negative          | Negative             |

| stain                           |        | (in<br>>60% of<br>cases) |          | positive    |        |
|---------------------------------|--------|--------------------------|----------|-------------|--------|
| Glucose<br>(mg/dL)              | 40-85  | <40°                     | Normal°  | I to normal | Normal |
| Protein<br>(mg/dL)              | 15-45  | >100°                    | 20-80°   | 150-300     | 50-200 |
| Opening<br>pressure<br>(mm H2O) | 50-180 | >300°                    | 100-350° | 160-340     | Normal |

*About other options*

- . Acute hemorrhagic conjunctivitis can be caused by Coxsackie virus A-24, but it is not common. Mostly it is caused by enterovirus - 70.
- . Myocarditis and hepatitis are mainly caused by Coxsackie virus group B.

## 126. Coxsackie group A commonly causes:

a) Conjunctivitis

b) Aseptic meningitis

c) Hepatitis

d) Myocarditis

Correct Answer - B  
Ans. b. Aseptic meningitis

**127. Haemorrhagic conjunctivitis is caused by?**

a) Enterovirus 70

b) Coxsackie virus

c) Enterovirus 72

d) Calcivirus

Correct Answer - A

Enterovirus 70 REF: Khurana 4<sup>th</sup> ed p.70

Acute hemorrhagic conjunctivitis is caused by enterovirus 70

**128. A patient had Dengue fever 2 years back caused by Dengue virus serotype 1. Now he is infected with serotype -4. Which is correct statement?**

a) The recent infection will cause mild disease

b) There are increased chances of Dengue hemorrhagic fever

c) There is no chance of Dengue hemorrhagic fever

d) Old infection has no bearing on recent infection

Correct Answer - B

**Ans. is 'b' i.e., There are increased chances of Dengue hemorrhagic fever**

[Ref Park 23<sup>rd</sup> /e p. 251; Harrison 19<sup>th</sup>/e p. 1322; Jawetz 23<sup>th</sup>/e p. 6]

- Reinfection with a virus of different serotype can cause dengue hemorrhagic fever.
- Dengue hemorrhagic fever (DHF) is a severe form of dengue fever caused by infection with more than one dengue viruses. hemorrhagic manifestations (epistaxis, petechiae, positive tourniquet test), thrombocytopenia, and increased hematocrit due to hemoconcentration. There is hepatomegaly.

**129. With which of the following of viral hepatitis infection in pregnancy, the maternal mortality is highest ?**

a) Hepatitis A

b) Hepatitis B

c) Hepatitis C

d) Hepatitis E

Correct Answer - D

Ans. is 'd' i.e., Hepatitis E

A unique feature of Hepatitis E is the clinical severity and high case fatality rate (20-40%) when it affects pregnant women, especially in last trimester.

**130. A hospital worker is found to be HBs Ag (+) <sup>ve</sup>. Further serum investigations show HBe(+)<sup>ve</sup> and IgG anti HBc (+)<sup>ve</sup>. The given hospital worker is?**

a) Acute Hepatitis B patient with High infectivity

b) Simple carrier with high infectivity

c) Chronic infection with high infectivity

d) Immunized person for Hepatitis B

Correct Answer - C

**Ans. is 'c' i.e., Chronic infection with high infectivity**

[Ref Ananthanarayan 9<sup>th</sup>/e p. 548]

|                                | HBsAg | Anti HBs Ag | HBeAg | Anti HBe Ag | Anti HBcAg |
|--------------------------------|-------|-------------|-------|-------------|------------|
| Acute HBV (high infectivity)   | +     | -           | +     |             | IgM        |
| Acute HBV (low infectivity)    | +     | -           |       | +           | IgM        |
| Chronic HBV (high infectivity) | +     | -           | +     |             | IgG        |
| Chronic HBV (low infectivity)  | +     | -           |       | +           | IgG        |
| Recovery                       | -     | +           | -     | +           | IgG        |

**131. Among the given viruses, which is best cultivated from urine?**

a) Rubella

b) Norwalk

c) CMV

d) Mumps

Correct Answer - C

**Ans. is 'c' i.e.,CMV**

[Ref **Textbook of viruses and their method of identification of Adu** p. 23, 24]

**"Viral culture of the urine and saliva obtained within first two weeks of life continue to be the gold standard for diagnosis of Congenital CMV infection"**

**132. Laryngeal papillomas is caused by which HPV ?**

a) 6, 11

b) 16, 18

c) 33, 45

d) 4, 27

Correct Answer - A

**Ans. is 'a' i.e., 6, 11**

*[Ref Harrison 19<sup>th</sup>ie p. 1199; Medical microbiology p. 786]*

- Laryngeal papillomatosis is wart with commonly site of involvement is larynx and respiratory tract, involving HPV type 6 and 11.

### 133. Virus causing Acute respiratory distress syndrome [ARDS] is?

a) RSV

b) Coronavirus

c) H1 N1

d) Measles

Correct Answer - B:C

**Ans. is 'b' > 'c' i.e., Coronavirus and H1 N1**

*[Ref Textbook of human respiratory viral infections p. 239] .*

- The acute respiratory distress syndrome (ARDS) can be induced by viral diseases like community-acquired pneumonia and Herpesviridae
- ARDS has predominantly linked with Influenza virus (Mostly H5N1, sometimes H1N1), Corona virus (SARS - CoV, MERS - CoV)

### 134. Lues maligna is caused by?

a) Borrelia

b) Leptospira

c) Brachyspira

d) Treponema

Correct Answer - D

**Ans. is 'd' i.e., Treponema**

*[Ref Textbook of Clinical microbiology p. 712; Clinical Microbiology Review journals]*

- Lues maligna represents a rare form secondary syphilis ( caused by treponema pallidum).
- also known as 'malignant syphilis' or 'ulceronodular syphilis'.

**135. Outbreak of abscess following vaccine injection can be caused by which mycobacteria?**

a) M fortuitum

b) M. scrofulaceus

c) M Hordinae

d) M Avium

Correct Answer - A

**Ans. is 'a' i.e., M. fortuitum [Ref [www.ijmm.org](http://www.ijmm.org)]**

- "Most outbreaks of post-injection abscess have been caused by M fortuitum and M abscessus", Injection site abscess is an iatrogenic infection and is a simple out patient procedure to treat.
- M. chelonae, M. fortuitum and M. abscessus are the most important rapidly growing mycobacteria associated with such infections.

**136. Lymphogranuloma venerum is caused by -**

a) Chlamydia trachomatis

b) Calymmatobacter granulomatis

c) Haemophilus ducreyii

d) Treponema pallidum

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

### 137. Intermediate host for *Taenia saginata* is?

a) Man

b) Snail

c) Cattle

d) Pig

Correct Answer - C

**Ans. is 'c' i.e., Cattle**

*[Ref Chatterjee 12<sup>th</sup>ie p. 120]*

- commonly known as the **beef tapeworm**, is a zoonotic tapeworm.
- Humans are generally infected as a result of eating raw or undercooked beef which contains the infective larvae, called cysticerci.
- embryonated eggs, called oncospheres, are released with faeces and are transmitted to cattle through contaminated fodder.
- Oncospheres develop inside muscle, liver, and lungs of cattle into infective cysticerci.

### 138. True about peripheral blood smear of malaria are all except?

- a) Single ring form in P vivax
- b) Multiple ring form in P. falciparum
- c) Enlarged erythrocytes in P. vivax
- d) Enlarged erythrocytes in P falciparum

Correct Answer - D

**Ans. is 'd' i.e., Enlarged erythrocytes in P falciparum**

*[Ref Pankar 6<sup>th</sup>/e p. 75, 76; Chatterjee 12<sup>th</sup>/e p. 79]*

- Single infection (single ring form) per erythrocyte is seen in, P vivax malaria, whereas, P faciparum malaria is characterized by multiple infections (multiple rings) per erythrocyte,
- Infected erythrocyte is enlarged in P vivax malaria whereas, it is of normal size in P falciparum malaria.

### 139. True about peripheral blood smear of plasmodium vivax?

- a) Single ring with cytoplasm condensed around in each erythrocyte
- b) Mature /old erythrocytes affected
- c) Parasitized erythrocytes of same size as normal erythrocytes
- d) Only ring and gametocytes are seen

Correct Answer - A

**Ans. is 'a' i.e., Single ring with cytoplasm condensed around in each erythrocyte**

*[Ref Pankar 6<sup>th</sup>/e p. 75, 76; Chatterjee 12<sup>'</sup>/e p. 79]*

**140.** There has been an outbreak of H1N1 influenza in your locality. You are the medical officer of the health centre. A 11 month old child of a woman, who had died due to H1N1 has been brought to you with symptoms of URTI. Which of the following is the appropriate antiviral regime of the child?

a) Oseltamivir 3 mg/kg BID x 5 days

b) Oseltamivir 2 mg/kg BID x 5 days

c) Zanamivir 10 mg BID x 5 days

d) Zanamivir 5mg BID x 5 days

**Correct Answer - A**

Zanamivir is indicated in individuals > 5 year of age only. The dose is 5 mg inhalation (twice) two times a day for 5 days.

The dosage of Oseltamivir for children

|                     |                        |
|---------------------|------------------------|
| 0 – 1 month of age  | 2 mg/kg BID x 5 days   |
| >1 month – 3 months | 2.5 mg/kg BID x 5 days |
| > 3 month – 1 year  | 3 mg/kg BID x 5 days   |

**Ref:** Park, 21st Edition, Page 148.

**141. All vaccine reduce pneumonia induced mortality except?**

a) Measles

b) Rebella

c) HIB

d) Pneumococcal

Correct Answer - B

**Ans. is `b' i.e., Rebella [Ref Park 24<sup>th</sup> le p. 182]**

- Measles vaccine, HIB vaccine (Haemophilus influenzae type B), Pneumococcal vaccines work to reduce the incidence of bacterial pneumonia.

## 142. Best tool to measure communicability of an infectious disease?

a) Secondary attack rate

b) Generation timeSerial interval

c) Serial interval

d) Incubation period

Correct Answer - A

**Ans. is 'a' i.e., Secondary attack rate**

*[Ref Park 24<sup>th</sup>/e p. 105 & 23<sup>d</sup> /e p. 100] Secondary attack rate*

- SAR is defined as "the number of exposed persons developing the disease within the range of incubation period, following exposure to primary case.

**143. Time period between primary case and secondary case is known as?**

a) Generation time

b) Serial interval

c) Secondary attack rate

d) Incubation period

Correct Answer - B

**Ans. is 'b' i.e., Serial interval**

*[Ref Park 24<sup>th</sup> /e p. 100, 105 & 23<sup>d</sup> /e p. 100].*

## 144. Cross-product ratio is estimated by ?

a) Cohort study

b) Case-control study

c) Cross sectional study

d) Field trial

Correct Answer - B

**Ans. is 'b' i.e., Case-control study**

*[Ref Park's 24<sup>th</sup> ed p. 78]*

**Odds - ratio (cross product ratio)**

- From a case control study odds ratio can be derived which a measure of the strength of association between risk factor and outcome.
- Odds ratio is closely related to relative risk (which is analysed in cohort study) 4 odds ratio represents only an estimate of relative risk.

**145. All are calculated by Cohort study, except ?**

a) Incidence

b) Relative risk

c) Odds ratio

d) Attributable risk

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

|                  | <b>Characteristics Cohort Study</b>                   | <b>Case control Study</b> | <b>Cross Sectional Study</b> |
|------------------|---|---------------------------|------------------------------|
| Design           | Prospective   | Retrospective             | One point in time            |
| <i>Incidence</i> | <i>Estimated</i>                                      | Not estimated             | Not estimated                |
| Prevalence       | Not estimated   | Not estimated             | Estimated                    |
| Calculations     | Incidence rates<br>Relative risk<br>Attributable risk | Odds ratio                |                              |

## 146. Admission rate bias is?

a) Reporting bias

b) Response bias

c) Berksonian bias

d) None

Correct Answer - C

Ans. is 'c' i.e., Berksonian bias

### **Selection bias**

- Selection biases are distortion that result from procedure used to select subjects and from factors that influence study participation.
- Groups to be compared are differentially susceptible to the outcome even before the experimental maneuver is performed.
- Selection bias may be of following types.
  1. Surveillance/detection bias
- A potential artifact in epidemiologic data caused by the use of a particular diagnostic technique or type of equipment.
- For example, cancer rates may vary in different regions or periods, not because of an actual difference in the incidence of disease but because of different diagnostic technologies.
- If diagnostic test is being used in one region is more sensitive than other region, the cancer rates will be high in that region even without the existence of an actual difference.
  2. Neyman survival bias (Incidence-Prevalence bias)
- This type of bias is due to missing of fatal cases, mild cases or cases of shorter duration from the study.
- For example, in a study of breast cancer, we can choose two different types of cases : ?
- .. Incident cases → All breast cancer patients newly diagnosed during

a given time.

2. Prevalent cases → All breast cancer patients who are alive during a given time frame.

- These can lead to different results, because the probability of finding a case in given time frame is related to mortality risk. Those patients who have a mild form of disease and survive for a relatively long time have a good chance of being around on the date of data collection. Those patients who die quickly are unlikely to be around on that date.

3. Referral bias or volunteer bias

- Volunteer or referral bias occurs because people who volunteer to participate in a study (or who are referred to it) are often different than non-volunteers/non referral.
- This bias usually favors the treatment group, as volunteers tend to be more motivated and concerned about their health.

4. Response bias

- Occurs when those who respond to a survey differ in important ways from those who do not respond.
- This bias can work in either direction, i.e., if bias occurs, when those who do not respond to a survey differ in important ways from those who respond, it is called nonrespondent bias.

5. Berksonian bias

- Berksonian bias results from the greater probability of hospital admission for people with two or more diseases than for people with one disease. So, it is also known as *admission rate bias*.
- For example, If breast cancer is the exposure of interest (diseases are often treated as exposures in hospital based case-control studies) and meningioma is the case disease then people with both breast cancer and meningioma could be hospitalized for either breast cancer or meningioma or both.
- However, people with only breast cancer or with only meningioma could be hospitalized because of one of these diseases.
- Therefore, a greater proportion of people in the community with both breast cancer and meningioma would be admitted to the hospital than would people with meningioma only.
- So, *Berksonian bias occurs when both exposure (e.g., breast cancer in above example) and disease (e.g., meningioma in above*

*example) affect selection.*

## 147. Minimum Brick wall thickness of septic tank should be?

a) 2 inches

b) 9 inches

c) 18 inches

d) 25 inches

Correct Answer - B

**Ans. is 'b' i.e., 9 inches**

*[Ref [www.indiawaterportal.org](http://www.indiawaterportal.org); Park's 24' le p.797]*

- "Wall built out of brick should not be less than 200 mm thick and should be plastered to a minimum thickness of 12 mm inside and outside with cement mortar not weaker than 1:3; where are built out of the stone masonry.
- A septic tank is usually provided with brick wall in which cement mortar [not less than 20 cm (9 inches)] thick and the foundation floor is of cement concrete 1:2:4.

**148. Lining of open sanitary well should be extended to a minimum depth of?**

a) 5 feet [1.5 m]

b) 10 feet [3 m]

c) 15 feet [4.5 m]

d) 20 feet [6 m]

Correct Answer - D

**Ans. is 'd' i.e., 20 feet [6 m] [Ref Park's 24<sup>th</sup>ie p. 746]**

- the well should be located not less than 15 m (50 feet) from likely sources of contamination. The well should be located at a higher elevation with respect to a possible source of contamination.

## 149. Criteria for wholesome water?

a) Free from pathogenic organisms

b) Should be colourless

c) Should be free of chlorine

d) Should be clear

Correct Answer - A

**Ans. is 'a' i.e., Free from pathogenic organisms**

*[Ref Park 24<sup>th</sup>/e p. 743 & 23<sup>rd</sup>/e p. 706]*

**150. Which of the following is correct regarding guidelines for drinking water?**

a) Chloride < 200 mg/L

b) TDS < 600 mg/L

c) Colour < 10 TCU

d) Turbidity < 2 NTU

Correct Answer - B

**Ans. is 'b' i.e., TDS < 600 mg/L [Ref: Park's 24<sup>th</sup>/e p. 759, 760] .**

## 151. Adequate Total per capita water for Urban domestic purposes?

a) 50-100 Liters

b) 100-150 Liters

c) 150-200 Liters

d) 200-250 Liters

Correct Answer - C

**Ans. is 'c' i.e., 150-200 litres**

*[Ref Park 24<sup>th</sup>ie p. 743 & 23<sup>rd</sup>/e p. 706]*

- The basic physiological requirements for drinking water have been estimated at about 2 litres per head per day.
- A daily supply of **150-200 litres** per capita is considered as an adequate supply to meet the needs for all urban domestic purposes.

**152. When orthotoludine reagent is added to water and if free chlorine is present, what colour will be produced?**

a) Pink

b) Yellow

c) Green

d) Red

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

**153. Which one of the following is categorised as a high risk pregnancy ?**

a) Birth order 3

b) Maternal height 150 cm

c) Twins pregnancy

d) Blood group AB +ve

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

## 154. Features of RNTCPA/E -

a) Achieving 80% BCG coverage

b) Involvement of NGO

c) Sputum - 3 times

d) All

Correct Answer - C

Ans. is 'c' i.e., Sputum 3 times

The salient features are :

1. Achievement of atleast 85% cure rate of infectious cases through the supervised short course chemotherapy involving peripheral health functionaries.
2. Augmentation of case finding activities through high quality sputum microscopy to detect at least 70% estimated cases.
3. Involvement of NGOS. information. education and communication and improved operational research. *Patients are screened through 2 sputum smear examination (not 3 times).*

*"A pulmonary tuberculosis suspect should submit two sputum samples for microscopy" - Park 21<sup>st</sup> e p. 169 Note : - According to 20<sup>th</sup>le of Park 3 sputum samples were required.*

## 155. Crimean-Congo Haemorrhagic Fever [CCHF] is transmitted by?

a) Ticks -

b) Mites

c) Cat fish

d) Mosquitoes

Correct Answer - A

**Ans. is 'a' i.e., Ticks**

*[Ref: Textbook of Microbiology by Park 24<sup>th</sup>/e p. 544]*

- Crimean-Congo haemorrhagic fever (CCHF) is a widespread disease caused by a tick-borne virus (Nairovirus) of the Bunyaviridae family

**156. Which of the following bacteria is transmitted by Housefly?**

a) Leptospira

b) Listeria

c) V. cholerae

d) Yersinia

Correct Answer - C

**Ans. is 'c' i.e., V. cholerae [Ref Park's 24<sup>th</sup>ie p. 805]**

- Cholera can be transmitted by Housefly

## 157. All are true about scrub typhus, except:

a) Causative organism is R.TSUTSUGAMOSHI

b) Vector is trombiculide mite

c) Adult female feeds on vertebrate hosts

d) Tetracycline is the drug of choice

Correct Answer - C

**Ans.** (c) Adult female feeds on vertebrate hosts on serum of warm blood animals only during there larval stage (chiggers) and adult mites feed only on plants"

### **Scrub typhus**

- **Caused by 0. tsutsugamushi**
- Transmitted by trombiculid mite which also shows transovarian spread. It must be noted that disease is transmitted by chiggers (larva), not by adult mite
- **Clinical features:** - Fever, headache, myalgia, cough and GI symptoms.
- - Classic case present with an eschar, regional lymphadenopathy and a maculopapular rash.
- **Diagnosis:** Serologic assays (IFA, indirect immunoperoxidase and enzyme immunoassays) are main stay of diagnosis.

**Treatment** - Rifampin

- Azithromycin and clarithromycin

Trudy speaking doxycycline is not drug of choice but it can be used for all rickettsial infections.

**158. Scrub typhus caused by R-  
tsutsugamushi is transmitted by?**

a) Flea

b) Chigger

c) Tick

d) Mosquito

Correct Answer - B

**Ans. is 'b' i.e., Chigger**

*[Ref Park 24<sup>th</sup> 1e p. 317 & 23<sup>rd</sup> 1e p. 299]*

- Scrub typhus is the most widespread Rickettsial disease.
- It is caused by **R. tsutsugamushi (orientia tsutsugamushi)** and the vector of its transmission is trombiculid mite (*Leptotrombidium delinense* and *L. akamushi*).

**159. A 32 years old male has got clean wound without laceration. He had booster dose of TT 6 years back. What is next line of management?**

a) Wound care with single dose of tetanus toxoid

b) Wound care with Human Tet Ig with tetanus toxoid single dose

c) Wound care with complete course of tetanus toxoid

d) Wound care with no immunization

Correct Answer - A

**Ans. is 'a' i.e., Wound care with single dose of tetanus toxoid**

*[Ref Park's 24<sup>th</sup>/e p. 331]*

- The given patients belongs to category B (Booster dose between 5-10 years back). Thus, the requires wound care and single dose of TT.

**160. A patient was brought to emergency with complaints of high-grade fever and altered sensorium. He was diagnosed to be suffering from meningococcal meningitis. Which of the following is the most appropriate empirical treatment option?**

a) Ceftriaxone

b) Piperacillin—Tazobactam

c) Penicillin

d) Cotrimoxazole

Correct Answer - A

Answer- A. Ceftriaxone

Meningococcal meningitis

**Treatment:**

- 3rd generation cephalosporin such as cefotaxime or ceftriaxone is DOC for initial therapy
- Prophylaxis: Rifampicin is DOC for meningococcal prophylaxis

ANTIBIOTIC RECOMMENDATIONS FOR BACTERIAL

MENINGITIS:

| BACTERIA                   | ANTIBIOTIC(IV)   | DURATION      |
|----------------------------|--|---------------|
| Streptococcus<br>Pneumonia | Vancomycin+3rd gen.<br>Cephalosporin(Cefotaxime or<br>ceftriaxone) | 10-14<br>days |
| Nesseria                   | 3rd gen. Cephalosporin(Cefotaxime or<br>ceftriaxone) or            | 5-10 days     |

|                       |   |            |
|-----------------------|---|------------|
| meningitidis          | Penicillin G or Ampicillin                        |            |
| H.influenza           | 3rd gen. Cephalosporin(Cefotaxime or ceftriaxone) | 7-10 days  |
| Listeria monocytogens | Penicillin G or Ampicillin ± Aminoglycocide       | 14-21 days |
| GBS                   | Penicillin G or Ampicillin ± Aminoglycocide       | 14-21 days |
| E.coli                | 3rd gen. Cephalosporin(Cefotaxime or ceftriaxone) | 21 days    |

**161. A pregnant female got infected with rubella virus at 22 weeks of pregnancy. The management of the Patient should be?**

a) Rubella vaccination

b) Rubella immunoglobulin IM

c) Antiviral drug

d) Reassurance

Correct Answer - D

**Ans. is 'd' i.e., Reassurance**

*[Ref Textbook of fetal medicine p. 214; Avery's Disease of Newborn - 508].*

- Women with a serologic diagnosis of rubella infection in the first trimester should be counseled about the likely occurrence of an adverse outcome of the pregnancy.
- The given pregnant woman is infected after 20 weeks (at 22 weeks) and her immunization status has not been mentioned → She should be counseled appropriately that chances of congenital rubella syndrome are negligible.

**162.** 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

**163. The values of systolic BP in a given data are 120, 120, 130, 120, 110, 110, 200. Which of the following will be best to used for central tendency in the given data?**

a) Mean

b) Median

c) Mode

d) Harmonic mean

Correct Answer - B

**Ans. is 'b' i.e., Median**

[Ref Park's 24<sup>th</sup>/e p. 884; Gupta 1<sup>st</sup>/e p. 191] Arithmetic mean

- It is the most commonly used statistical average.
- To calculate mean, add up the values of all individual observation and then divide by the number of observations.
- The process of adding together is called summation and is denoted by the sign  $\Sigma$  or  $\Sigma$ .

**164. In a clinical trial, blood pressure was measured between in a group of patients before and after treatment, which of the following test will be suitable as at test of significance?**

a) Paired t-test

b) Mann Whitney U test

c) Student test

d) ANOVA

Correct Answer - A

**Ans. A. Paired t-test**

**165. Tabacco/Smoking is considered as risk factor but not cause of cardiovascular disease because?**

a) No temporal association

b) Long latent period

c) Multifactorial causation

d) Less sensitivity

Correct Answer - C

**Ans. is 'c' i.e., Multifactorial causation**

*[Ref Park's 24<sup>th</sup>ie p. 382]*

- Most non-communicable chronic disease (e.g., cardiovascular diseases) are the result of multiple causes and rarely there is a simple one-to-one cause-effect relationship.
- In the absence of a known agent (i.e.- in multiple causes), the term "risk factor (s)" is used to describe certain factors which are involved in causation of the disease

## 166. True of consanguineous marriages and genetic abnormalities are all except?

- a) Increased risk of traits controlled by dominant genes
- b) Increased risk of pre-nature death
- c) Phenylketonuria is an example
- d) Lowering of consanguineous marriages will improve community health

Correct Answer - A

**Ans. is 'a' i.e., Increased risk of traits controlled by dominant genes**

*[Ref Park's 24<sup>th</sup> M p. 865]*

- Consanguineous marriages: When blood relatives marry each other there is an increased risk in the offspring of traits controlled by **recessive** genes, and those determined by polygenes.

## 167. True about factories Act?

a) Maximum hours of work per week is 40 hrs.

b) Maximum hours of work per week is 48 hrs.

c) Maximum working hours for adolescent is **72 hours per week**

d) Children are entitled for 2 holidays a week

Correct Answer - B

**Ans. is 'b' i.e., Maximum hours of work per week is 48 hrs.**

*[Ref Park 24<sup>th</sup>/e p. 852]* **Factories Act**

- The first Indian Factories act dates as far back as 1881.
- The act was revised and amended several times, the latest being the **factories (Amendment) act, 1987**

**168. Which of the following has responsibility of data collection for active malaria surveillance at PHC level ?**

a) DHO [District Health Officer]

b) MPW [Multipurpose worker]

c) MO-PHC [Medical Officer-PHC]

d) DMO [District Medical Officer]

Correct Answer - C

**Ans. is 'c' i.e., MO-PHC [Medical Officer-PHC]**

[Ref Park 24"/e p. 433]

- "The Medical Officer-PHC has the overall responsibility for surveillance and laboratory services, and also supervises the spray".

**169. Which of the following is not a goal of population based cancer registry?**

a) Administrative information

b) Determination of cancer rates and trends

c) Patterns of care and outcomes

d) Cancer prevention

Correct Answer - A

**Ans. is 'a' i.e., Administrative information**

[Ref Cancer epidemiology : principles & methods - 385]

- The cancer registry is an organization for the systematic collection, storage, analysis, interpretation and reporting of data on subjects with cancer.

## 170. Carhart's notch in audiometry is seen in:

a) Ocular discontinuity

b) Haemotympanum

c) Otomycosis

d) Otosclerosis

Correct Answer - D

### **Carharts notch**

- Bone conduction is normal in otosclerosis.
- In some cases there is a dip in bone conduction curve which is maximum at 2000 Hz / 2 KHZ called as Carharts notch.
- Carharts notch is seen only in bone conduction curve.
- It disappears after successful stapedectomy/stapedotomy.
- The reason why it disappears after successful surgery is that when the skull is vibrated by bone—conduction sound, the sound is detected by the cochlea via 3 routes:
  - Route (a)—is by direct vibration within the skull.
  - Route (b)—is by vibration of the ossicular chain which is suspended within the skull.
  - Route (c)—is by vibrations emanating into the external auditory canal as sound and being heard by the normal air-conduction route.
- In a conduction type of hearing loss (as in otosclerosis) the latter two routes are deficient but regained by successful reconstruction surgery. Hence bone conduction thresholds improve following surgery.

## 171. 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 (Carhart'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, Carhart's notch of otosclerosis is a dip for bone conduction, while acoustic dip of NIHL is for both air as well as bone conduction.

## 172. Inspiratory stridor is found in what kind of lesions:

a) Supraglottic

b) Subglottic

c) Tracheal

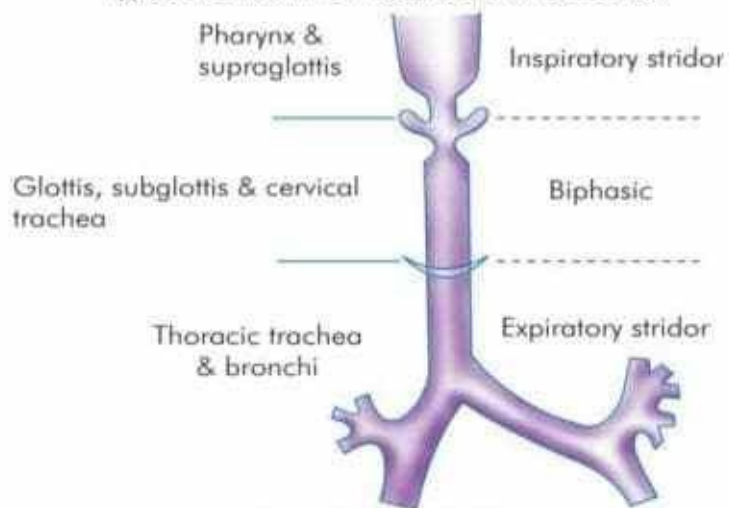
d) Bronchus

Correct Answer - A

Answer A. Supraglottic

- Generally, an inspiratory stridor suggests airway obstruction above the glottis.
- While an expiratory stridor is indicative of obstruction in the lower trachea.
- A biphasic stridor suggests a glottic or subglottic lesion.

Types Of Stridor And Probable Site of Obstruction



(Herring, Diseases of the Nose and Throat, 5th Edition, Copyright © 2010 Elsevier. All rights reserved.)

### 173. 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 sublingual space, usually on a bilateral basis.*

*Most common cause is infection of the root of the teeth (Dental infection), especially 2<sup>nd</sup> and 3<sup>rd</sup> mandibular molar.*

Other causes are mouth injury, mandibular fracture, and submandibular sialadenitis.

## 174. The function of middle ear is-

a) Impedence matching

b) Converting sound energy into electric energy

c) Increase in intensity of sound

d) Helps in equilibrium

Correct Answer - A

**Ans: A. Impedence matching**

(Ref: Dhingra's S'h/e p. 18; Tuli L't/e p. 35)

- The middle ear ossicles provide a pathway for sound to travel from the outer to the inner ear.
- Opposition to sound energy transfer is known as impedance.
- The ossicles exist to help overcome the effect of impedance by impedance matching, thus permitting more sound energy to be transmitted from the outer to the inner ear.

## 175. Which of the following arises from pharyngeal bursa-

a) Thornwald's disease

b) Craniopharyngioma

c) Chordoma

d) Lymphoma

Correct Answer - A

**Ans: A. Thornwald's disease**

(Ref: Scott-Brown's otolaryngology 10th ed vol-2 p. 161, 2122; Dhingra Sh/e p. 260]

**Thornwald's disease (Pharyngeal bursitis):**

- Infection of the pharyngeal bursa which is a median recess representing attachment of notochord to endoderm of the primitive pharynx.
- Pharyngeal bursa is located in the midline of posterior wall of the nasopharynx in the adenoid mass.
- Asymptomatic lesions require no treatment.
- If treatment is required then de-roofing the cyst (marsupialization) is usually sufficient, and can be performed via a transpalatal approach.

**176. Nerve injured in Frey's syndrome is:**



a) Auriculotemporal Nerve

b) Great auricular nerve

c) Lingual Nerve

d) Inferior alveolar nerve

Correct Answer - A

Answer A. Auriculotemporal Nerve

- Frey's syndrome (also known as Baillarger syndrome, Dupuy's syndrome, auriculotemporal syndrome, or Frey-Baillarger syndrome) is a rare neurological disorder resulting from damage to or near the parotid glands responsible for making saliva, and from damage to the auriculotemporal nerve often from surgery.

**177.** Recurrent facial nerve palsy is a feature of:

a) Melkersson Rosenthal syndrome

b) Simpson Golabi syndrome

c) Down's syndrome

d) Klinefelter's syndrome

**Correct Answer - A**

The rare *Melkersson-Rosenthal syndrome* consists of recurrent facial paralysis; recurrent—and eventually permanent—facial (particularly labial) edema; and, less constantly, plication of the tongue. Its cause is unknown

**Ref:** Harrison's principle of internal medicine 17th edition, chapter 371.

## 178. Pott's puffy tumor:

a) Subperiosteal abscess of frontal bone

b) Subperiosteal abscess of ethmoid bone

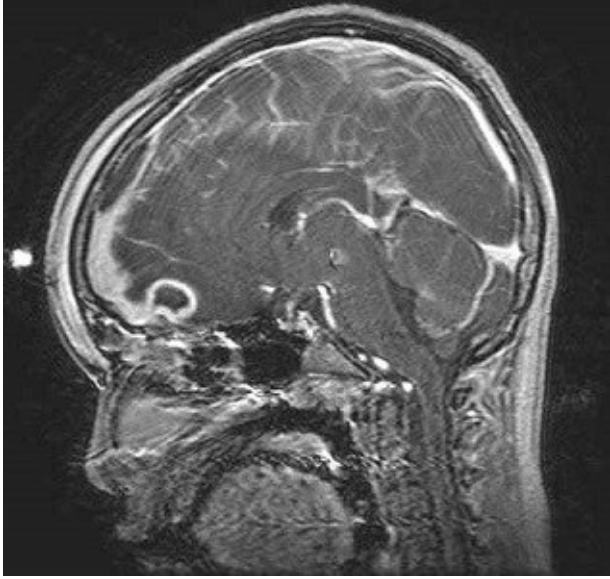
c) Mucocele of frontal bone

d) Mucocele of ethmoid bone

Correct Answer - A

### **Answer. A. Subperiosteal abscess of frontal bone**

- Pott's puffy tumor, first described by Sir Percivall Pott in 1760, is a rare clinical entity characterized by **subperiosteal abscess** associated with osteomyelitis.
- It is characterized by an **osteomyelitis of the frontal bone**, either direct or through haematogenous spread.
- This results in a swelling on the forehead, hence the name.
- The infection can also spread inwards, leading to an intracranial abscess.
- Pott's puffy tumor can be associated with cortical vein thrombosis, epidural abscess, subdural empyema, and brain abscess.



## 179. Philtrum is derived from-

a) Maxillary process

b) Mandibular process

c) Medial nasal process

d) Lateral nasal process

Correct Answer - C

**Ans. C. Medial nasal process**

[Ref: IB Singh's Vh/e p. 142-147]

**Frontonasal process is divided into:-**

**i) Lateral nasal processes:**

- From alae of nose.

**ii) Medial nasal processes:**

- These merge with each other to form intermaxillary segment which gives rise to :
  - .. philtrum (middle part of upper lip),
  - .. premaxillary plate.

## 180. Herpes zoster oticus is caused by-

a) Herpes virus type 1

b) Herpes virus type 2

c) Herpes virus type 3

d) Herpes virus type 4

Correct Answer - C

**Ans. C. Herpes virus type 3**

- Herpes Zoster oticus or Ramsay - Hunt syndrome is caused by varicella (herpes) Zoster virus also known as Human herpes virus type-3.

**181. Minimum angle of resolution [MAR] when visual acuity is 6/6**

a) 1 min of arc

b) 5 min of arc

c) 10 min of arc

d) 15 min of arc

Correct Answer - A

Answer-A. 1 min of arc

**Visual acuity is the first test performed after taking history.**

- Measurement of the central visual acuity is essentially an assessment of function of the fovea centralis.
- An object must be presented so that each portion of it is separated by a definite interval, known as minimum angle of resolution (MAR). Customarily, this interval has become one minute of an arc.
- The test object should subtend an angle of five minutes of an arc.

**182. If a person has visual acuity 6/6. At what distance will he/she be able to read 6/24 lines**

a) 6 metres

b) 24 metres

c) 36 metres

d) 48 metres

Correct Answer - B

Answer- B. 24 metres

- Visual acuity 6/6 means that a Person with normal visual acuity can read the smallest line at a distance of 6 meters.
- Visual acuity 6/24 means that this person can read particular letters/lines at a distance of 6 meters which a person with normal visual acuity can read from a distance of 24 mm.

**183. Which of the following physiological change occurs in near vision**

a) Decrease in power of lens

b) Contraction of lateral rectus

c) Increase in depth of focus

d) Increase in zonular tension

Correct Answer - C

Answer- C. Increase in depth of focus

- When a person tries to see a near object, there is stimulation of near reflex. Thus near vision stimulates near reflex.

**184. Which of the following does not effect the refraction of eye**

a) Removal of vitreous

b) Thickening of lens

c) Increase in depth of anterior chamber

d) Change in axial length

Correct Answer - C

Answer- C. Increase in depth of anterior chamber

- Depth of anterior chamber has no role in refractive system of eye.
- Removal of vitreous will change the refraction
- Thickening of lens will change the refraction
- Change in axial length has a large effect on refractive power of eye.
- The main function of refractive system of eye is to focus the light rays on the retina.

## 185. What is incorrect regarding sickle cell retinopathy

a) Sea-fan appearance in superotemporal retina

b) HBSS has more severe ocular manifestations than HBSC

c) Angiod streaks are seen

d) CRAO is seen

Correct Answer - B

Answer- B. HBSS has more severe ocular manifestations than HBSC

- Among the hemoglobinopathies, the incidence of proliferative sickle retinopathy is higher in individuals with Hb-SC disease and S-Beta thalassemia than in individuals with HbSS disease"
- "subject with HbSC and HbS p-thal are more likely than HbSS patients to have serious ocular manifestations

## 186. Ocular findings in AIDS are all except

a) > 50% of patients have cotton wool spots

b) Kaposi sarcoma of eyelids

c) Roth spots

d) Cotton wool spots harbours CMV

Correct Answer - D

Answer- D. Cotton wool spots harbours CMV

### **Ocular findings in AIDS**

- Ocular manifestations of AIDS may be seen in up to 70-90% of patients.
- Most common are cotton wool spots, CMV retinitis and conjunctival/eyelid kaposi sarcoma.
- SO-70% of HIV-infected patients develop HIV retinopathy which has following findings:
  - 1) Cotton-wool spots (most common)
- Intraretinal hemorrhages
- Roth spots
- Retinal microaneurysms

**187. Left homonymous hemianopia is seen in which right sided lesion**

a) Optic tract

b) Optic nerve

c) Optic chiasma

d) Occipital [visual] cortex

Correct Answer - A

Ans: A. Optic tract

**188.** Christmas tree cataract is seen in?

a) Diabetes

b) Atopic Dermatitis

c) Myotonic dystrophy

d) Rubella

**Correct Answer - C**

Presenile cataract occurs in patients with atopic dermatitis (stellate opacities mostly posterior), myotonic dystrophy (christmas tree cataract) and GPUT & GK enzyme deficiency.

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**Reference:**

A K Khurana, 5th Edition, Page 95

**189. In pterygium, which layer of cornea is involved most often**

a) Epithelium

b) Endothelium

c) Bowman's layer

d) Descemet's membrane

Correct Answer - C

Answer- C. Bowman's layer

- Pterygium is a growth from conjunctiva, In cornea, it involves Bowman's layer.
- "Corneal involvement in pterygia includes infiltration of Bowman's layer, a strong layer of collagen directly beneath the corneal epithelium. Disruption of Bowman's layer leads to scarring.
- Pterygium is a degenerative and hyperplastic condition of conjunctiva.

**190. A 45 years male patient is presenting with lower abdominal pain, intermittent diarrhea and some weight loss. The endoscopic finding is showing following figure. The diagnosis is-**

a) Tropical sprue

b) Coeliac sprue

c) Ulcerative colitis

d) Crohn's disease

Correct Answer - D

**Answer- D. Crohn's disease**

**Clinical features of crohn's disease-**

- MC symptom is intermittent and colicky abdominal pain, most commonly noted in the lower abdomen.
- Other symptoms are intermittent diarrhea and weight loss.
- The onset of symptoms is insidious, and once present, their severity follows a waxing and waning course.
- This is 'cobblestone appearance' → characteristic of Crohn's disease.

## 191. True about klinefelter syndrome is

a) Height > arm span

b) Karyotype 45 x 0

c) Testis and sperm count are normal

d) Puberty is attained at normal age

Correct Answer - D

**Answer- D. Puberty is attained at normal age**

### **KLINFELTER 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.
- Pathophysiology:**
- The addition of more than 1 extra X or Y chromosome to a male karyotype
- Sexual characteristics-**
- Patients may lack secondary sexual characteristics because of a decrease in androgen production. This results in sparse facial/body/sexual hair, a high-pitched voice. They have eunuchoid body habitus.
  - Testicular dysgenesis (small firm testis, testis size <10 mL) may be present in postpubertal patients. Infertility/azoospermia may result from atrophy of the seminiferous tubules. Infertility is seen in practically all individuals with a 47 XXY karyotype. Patients with Klinefelter syndrome mosaicism (46,XY/ 47,XXY) can be fertile.

## 192. Ocular hallmark of giant cell arteritis is

a) Papilloedema

b) CRAO

c) AION

d) CRVO

Correct Answer - C

**Answer- C. AION**

- The most common ocular manifestation of giant cell arteritis is visual loss, most commonly secondary to anterior ischemic
- optic neuropathy (AION) due to occlusion of short posterior ciliary arterities.
- Ophthalmic artery involvement can lead to sudden blindness which is the most feared complication of temporal arteritis.

**193. Dysgeusia/hypogeusia is seen in deficiency of which mineral**

a) Zinc

b) Selenium

c) Iron

d) Copper

Correct Answer - A

**Answer- A. Zinc**

Dysgeusia is altered (distorted) sensation of taste or simply bad taste in mouth. It may be metallic taste, rancid taste, salty taste, sour or foul taste.

**Important causes of dysgeusia are-**

- Nutritional deficiency- Zinc deficiency, Vitamin B-12 deficiency

## 194. Complications of massive blood transfusion are all except

a) Hypercalcemia

b) Hyperkalemia

c) Hypokalemia

d) Hypothermia

Correct Answer - B:D

### **Answer- A. Hypercalcemia**

- Hypothermia- Due to cold blood transfusion
  - Hyperkalemia- K<sup>+</sup> moves out of RBC during storage
  - Hypokalemia- K<sup>+</sup> taken back by depleted RBC
- Important complications of massive blood transfusion
- . Fluid overload
  - . Hypothermia
  - . Hyperkalemia
  - . Hypocalcemia
  - . Hypomagnesemia
  - . Acidosis / Alkalosis

**195. All of the following are seen in Tumor Lysis Syndrome, except:**

a) Hyperkalemia

b) Hypercalcemia

c) Hyperuricemia

d) Hyperphosphatemia

Correct Answer - B

Answer is B (Hypercalcemia):

*Tumor lysis syndrome is associated with Hypocalcemia and not Hypercalcemia*

*Tumor lysis syndrome is a clinical entity characterized by destruction of large number of rapidly proliferating neoplastic cells following chemotherapy.*

## 196. Sternal puncture is done at which site

a) Junction of upper and lower half of body

b) Upper part of manubrium

c) Lower part of manubrium

d) Just above xiphisternum

Correct Answer - B

**Answer-B. Upper part of manubrium**

**Sternal puncture**

- Manubrium sterni is the preferred site for bone marrow aspiration because it is subcutaneous and readily accessible.
- The bone marrow sample is required for haematological examination. A thick needle is inserted into the upper part of the manubrium to avoid injury to arch of aorta, which lies behind the lower part.

## 197. ADAM TSB.13 deficiency is seen in

a) TTP

b) HUS

c) Wegner's granulomatosis

d) Membranous nephropathy

Correct Answer - A

**Answer- A. TTP**

- TTP is included among group of diseases called thrombotic microangiopathic which are characterised by widespread thrombosis in microcirculation. The other disorder which is included in this group include hemolytic uremic syndrome (HUS)
  - Small vessels like terminal arterioles and capillaries are involved.
- Pathogenesis of TTP**
- Patients with TTP are deficient in an enzyme called ADAMTSB.T3 also known as vWF metalloprotease that degrades very high molecular weight multimers of vWF.

**198. In Asthma patient positive bronchodilator reversibility test is indicated by**

a) Increase in FEV1 > 5% after SABA inhalation

b) Increase in FEV1 > 12% after SABA inhalation

c) Increase in FEV1 > 25% after SABA inhalation

d) Increase in FEV1 > 50% after SABA inhalation

Correct Answer - B

**Answer- B. Increase in FEV1 > 12% after SABA inhalation**

Bronchial reversibility is defined as SABA induced increase in FEV1 > 12% and > 0.20 litres (200 ml)

**199. What will the estimated PaO<sub>2</sub> after giving FiO<sub>2</sub> at 0.5 in a normal person?**

a) > 50 mmHg

b) > 100 mmHg

c) > 150 mmHg

d) > 200 mmHg

Correct Answer - D

**Answer- D. > 200 mmHg**

In normal person, the measured P<sub>A</sub> O<sub>2</sub> should equal to 5 x FiO<sub>2</sub> .  
For example, a patient breathing 40% O (FiO<sub>2</sub> of 0.4) should have a PaO<sub>2</sub> 5 x 40 = 200 mmHg. A P<sub>A</sub> O<sub>2</sub> less than 4 to 5 times the FiO<sub>2</sub> suggest poor lung function or hypoventilation.

**200. Silicosis is seen due to exposure in which industry**

a) Mica

b) Coal

c) Paint

d) Refinery

Correct Answer - A:C

**Answer- A & B**

Silicosis is a fibrotic lung disorder caused by inhalation, retention and pulmonary reaction to crystalline silica, as a result of exposure during mining, stone crushing and quarrying activities.

The most common form of silica is quartz.

**201. A patient has been diagnosed clinically as a case of meningitis. MRI of brain is showing soap - bubble lesion, and organism can be identified by India - Ink preparation. The cause is**

a) Tuberculosis

b) Cryptococcus

c) Listeria

d) Naegleria fowleri

Correct Answer - B

**Answer- B. Cryptococcus**

- The diagnosis is cryptococcal meningitis.
- When the cyst lesions are found in Virchow - Robin spaces (V.R. spaces), the V-R. spaces would present a soap - bubble appearance, which contain a multitude of cryptococcus, accompanied with or without inflammatory reactions.

**Following tests are used:-**

**A) Serology**

- The most useful serological test is LPA test (Latex agglutination test for the detection of cryptococcal polysaccharide capsular antigen).
- This is highly specific and sensitive; and gives better results than direct microscopy and cultures,

**B) Direct microscopy**

- Unstained wet preparations of CSF mixed with drop of India ink or nigrosine demonstrate the capsule as a clear halo .
- Methenamine silver or periodic acid-Schiff are used for staining a

tissue sample.

## 202. pANCA positive vasculitis is

a) Wegener's granulomatosis

b) Churg - Strauss syndrome

c) Polyarteritis nodosa

d) All of the above

Correct Answer - B

**Answer- b. Churg - Strauss syndrome**

**PANCA**

**Typically found in:**

- Microscopic polyangiitis
- Churg-Strauss syndrome
- Idiopathic crescentic glomerulonephritis
- Goodpasture's syndrome.
- pANCA's are also associated with certain non-vasculitic entities such as certain rheumatic and nonrheumatic autoimmune diseases, Inflammatory bowel diseases, certain drugs. Infections such as endocarditis and bacterial airway infection in patients with cystic fibrosis

**203. According to American Psychiatric Association, criteria for prolonged seizure after ECT, if the seizure lasts more than**

a) 140 sec

b) 150 sec

c) 160 sec

d) 180 sec

Correct Answer - D

**Answer- D. 180 sec**

Prolonged seizure is defined as one that lasts for more than 3 minutes"

"Duration of more than 3 minutes is the criterion for prolonged seizures according to the American psychiatric association (1990)"

**204. Which of the following statements is true about the bundle of Kent?**

a) Abnormal pathway between two atria

b) It is muscular or nodal pathway between the atria and ventricle in WPW syndrome

c) It is slower than the AV nodal pathway

d) None

Correct Answer - B

**Answer. B. It is muscular or nodal pathway between the atria and ventricle in WPW syndrome**

**Explanation-**

- The Wolff-Parkinson-White syndrome is defined by the combination of an atrioventricular pre-excitation (bundle of Kent) and paroxysmal supraventricular tachycardias. The diagnosis of atrioventricular pre-excitation in sinus rhythm is established on the association between a short PR interval, a wide QRS, a delta wave, a normal terminal QRS portion and frequent repolarization disorders.

## 205. Infective organism causing AV block

a) Treponema pallidum

b) Borrelia burgdorferi

c) Cryptococcus

d) Listeria monocytogenes

Correct Answer - B

**Answer- B. Borrelia burgdorferi**

- Complete AV block may occur with infections that cause myocarditis.
- ' Myocarditis affects conduction system and can cause arrhythmias, typical causing complete AV block.

**Infections causing bacteria AV block**

1. Diphtheria
2. Lyme disease (Borrelia burgdorferi)
3. Rocky mountain spotted fever
4. Rheumatic fever

**Causes of Mobitz II second degree AV block include following**

- Degenerative disease of the His-Purkinje system
- Damage of the conduction system from coronary artery disease, valve surgery, myocardial infarction, myocarditis, infiltrative cardiomyopathies (sarcoidosis, hemochromatosis), myxedema, Lyme disease, neuromuscular disease, and AV junction ablation
- Systemic diseases (eg, ankylosing spondylitis, Reiter syndrome)

## 206. The following are true regarding Lyme's Disease, except -

a) It is transmitted by ixodid tick

b) Erythema chronicum migrans may be a clinical feature

c) *Borrelia recurrentis* is the aetiological agent

d) Rodents act as natural hosts

Correct Answer - C

Ans. is 'c' i.e., *Borrelia recurrentis* is the aetiological agent

Lyme's disease

- . *Borrelia burgdorferi* is the causative agent of *Lyme's disease*.
  - . *Borrelia burgdorferi* is transmitted by the bite of Ixodid ticks.
- The natural reservoir hosts are rodents, deer and other mammals.  
*Incubation period of lyme disease is 3-30 days.*
- . Lyme disease occurs in three stages.
1. Stage I (Local infection)
    - Characteristic expanding skin lesion 'Erythema migrans' at the site of tick bite.
  2. Stage 2 (Disseminated infection)
    - Spirochete spreads to many different sites secondary annular skin lesions, carditis/AV block, migratory musculoskeletal pain etc.
  3. Stage 3 (Persistent infection)
    - Intermittant attacks of oligoarthritis (most common in knee), acrodermatitis chronica atrophicans, encephalomyelitis, encephalopathy, polyneuropathy.

**207. Which of the following rhythm associated with cardiac arrest is shockable**

a) Asystole

b) Pulseless activity

c) Ventricular fibrillation

d) All of the above

Correct Answer - C

**Answer-C. Ventricular fibrillation**

1. Ventricular fibrillation (VF) → most common
2. Pulseless ventricular tachycardia (VT)
3. Asystole
4. Pulseless electrical activity (PEA)

**Shockable Rhythms**

- Ventricular fibrillation: disorganised electric activity of the ventricular myocardium which fails to generate significant forward blood flow.
- Pulseless ventricular tachycardia: organised electric activity of the ventricular myocardium which fails to generate significant forward blood flow.

**208. An 18 years female complaining of breathlessness fainting and tingling sensation over lips. She has history of similar episodes in past. What is the diagnosis**

a) Myocardial infarction

b) ARDS

c) Upper respiratory tract infection

d) Hyperventilation

Correct Answer - D

**Answer- D. Hyperventilation**

Tingling around mouth (over lips) is seen in hyperventilation due to hypocalcemia.

**Symptoms of hyperventilation include-**

1. Abdominal symptoms (due to swallowing of excess air): bloating, burping, excessive flatus
2. CNS symptoms (due to decrease PCO<sub>2</sub>): weakness, fainting, confusion, dizziness, restlessness, anxiety, panic attack.
3. Due to hypocalcemia: numbness & tingling around mouth & in limbs, carpal spasm, muscle twitching, tetany
4. Chest symptoms : chest pains, shortness of breath & breathlessness, wheezing, tachypnea.

## 209. Absence seizures are seen in:

a) Grand mal epilepsy

b) Myoclonic epilepsy

c) Petitmal epilepsy

d) Hyperkinetic child

Correct Answer - C

Answer is C (Petitmal epilepsy):

*Absence seizures are synonymous with Petitmal epilepsy*

## 210. Carpopedal spasm in hyperventilation occurs because

- a) Increased calcium uptake by sarcoplasmic reticulum of muscles
- b) Increased calcium uptake by bones
- c) Increased calcium binding to plasma protein
- d) Increased urinary excretion of calcium

Correct Answer - C

**Answer- C. Increased calcium binding to plasma protein**

Carpopedal spasm and tetany is due to hypocalcemia.

"The alkalosis that result from hyperventilation may worsen the hypocalcemia by increasing the fraction ionized calcium bound to plasma protein.

## 211. APGAR score-6 means-

a) Normal

b) Mild depression

c) Severe depression

d) Needs immediate resuscitation

Correct Answer - B

### **Answer-B. Mild depression**

APGAR Score is a quantitative method for assessing infants respiratory circulatory and neurological status

The test is generally done at one and five minutes after birth, and may be repeated later if the score is and remains low. Scores 3 and below are generally regarded as critically low, 4 to 6 fairly low, and 7 to 10 generally normal.

|                     | 0                | 1                   | 2            |
|---------------------|------------------|---------------------|--------------|
| HR                  | Absent           | <100                | >100         |
| Respiration         | Absent           | Irregular/weakcry   | Strong cry   |
| Reflex irritability | No response      | Grimace             | Cough/sneeze |
| Muscle tone         | None             | Some flexion        | Well flexed  |
| Color               | Central cyanosis | Peripheral cyanosis | Pink         |

## 212. Structures pierced during pleural tapping are a/e

a) endothoracic fascia

b) pulmonary pleura

c) skin

d) intercostal muscle

Correct Answer - B

Ans is 'b' i.e. pulmonary pleura

*Pleural space lies between the parietal pleura and the visceral (pulmonary) pleura. Parietal pleura lines the inner surface of the chest wall; visceral pleura is invested on the surface of the lung. Thus to reach the pleural space for pleural fluid tapping, parietal pleura is pierced and not the visceral pleura.*

The usual location for pleural tapping is mid axillary line sixth, seventh or eighth intercostal space.

The structures pierced by the needle during pleural tapping in the mid axillary line are (in order):

1. Skin
2. Superficial fascia
3. Muscles
  - *Serratus anterior*
  - *External intercostal or Intercostales externi* - *Internal intercostal or Intercostales interni*
  - *Innermost intercostal or Intercostales intimi*
4. Endothoracic fascia
5. Parietal pleura

**213. After a transient ischemic attack, chances of stroke are maximum in**

a) First 48 hours

b) First 10 days

c) First 1 month

d) First 5 months

Correct Answer - A

**Answer-A. First 48 hours**

- The largest study of risk of recurrent stroke after TIA showed that 50% of all ischemic strokes after TIA occur within 48 hours of the TIA.
- TIAs are episodes of stroke symptoms that last only briefly < 24h, but most TIAs last < 1 h.
- The risk of stroke after a TIA is- 10 - 15% in the first 3 months, with most events occurring in the first 2days.

**214.**

**A surgeon is exploring the mediastinum found a thymic mass invading the neighboring pericardium and phrenic nerves. Frozen section is showing benign thymoma. The next intraoperative plan should be**

a) Abandon the surgery & start chemotherapy

b) Abandon the surgery & start radiotherapy

c) Complete resection of tumor

d) Close the mediastinum and wait for final report

Correct Answer - C

**Answer- C. Complete resection of tumor**

- The treatment of choice for the patient presented in the question is as complete a resection as possible while at least one phrenic nerve is preserved.
- Postoperatively, the patient should receive x-ray therapy, and the combination of surgery plus irradiation offers a good chance of satisfactorily controlling the neoplasm.

**215. If urine dipstick shows +3, what is the protein level in mg/dl in urine**

a) 30 mg/dl

b) 50 mg/dl

c) 100 mg/dl

d) 300 mg/dl

Correct Answer - D

**Answer-D. 300 mg/dl**

1+ = 30mg/dl

2+ = 100mg/dl

3+ = 300mg/dl

4+ = 1000mg/dl

## 216. Intravenous fluid of choice in management of diabetic ketoacidosis

a) Normal saline

b) Colloids

c) 5% dextrose

d) Dextran - 70

Correct Answer - A

**Answer-A. Normal saline**

**Treatment of DKA**

**1. Insulin**

- A bolus of IV IM short acting insulin (regular insulin) should be given immediately to reduce blood glucose level'
- Subsequent treatment should provide continuous and adequate level of circulating insulin'

**2. IV fluid**

- Due to vomiting, osmotic diuresis and hyperventilation, there is dehydration and Na. deficit in DKA which should be treated by iv saline infusion.
- Normal saline (0.9% saline) is the fluid of choice

**3. KCl**

**4. Sodium bicarbonate**

**5. Magnesium and phosphate**

## 217. Myotonic dystrophy is due to-

- a) Expansion in coding region
- b) CAG triple nucleotide repeat mutation
- c) CTG triple nucleotide repeat mutation
- d) Involves chromosome 15

Correct Answer - C

### **Answer-C. CTG triple nucleotide repeat mutation**

- Myotonic dystrophy is associated with a trinucleotide CTG repeat expansion on chromosome 19.
- This expansion affects the mRNA for the dystrophila myotonia protein kinase (DMPK).

### **Triple nucleotide repeat mutations**

- Normally, a codon is triplet (trinucleotide) (e.g. for CGG it is 5-50 and CGG triplet codon can be repeated, at a stretch, 5-50 times)
- Non-coding region

## 218. Marker for biliary tract obstruction [cholestasis]-

a) Alkaline phosphatase

b) Aspartate transaminase

c) Alanine transaminase

d) Creatinine kinase

Correct Answer - A

**Answer-A. Alkaline phosphatase**

**Enzymes that reflect cholestasis**

- Alkaline phosphatase
- 5'- nucleotidase
- Gamma-glutamyl transpeptidase (GGT)
- Lipoprotein-X is an abnormal lipoprotein that appears in the sera of patients with obstructive jaundice and thus is a sensitive indicator of cholestasis.

**219.** A patient with cushingoid features presents with hemoptysis, he shows no response to dexamethasone suppression test. The most likely diagnosis is:

a) Adrenal hyperplasia

b) Adrenal adenoma

c) Ca lung with ectopic ACTH production

d) Pituitary microadenoma

Correct Answer - C  
Ca lung with ectopic ACTH production

## 220. True about joint involvement in hemochromatosis are all except

- a) Progressive after phlebotomy
- b) Involvement 2nd & 3rd MCP joints on X-ray
- c) Chondrocalcinosis is not a feature
- d) Non-inflammatory changes

Correct Answer - C

**Answer- C. Chondrocalcinosis is not a feature**

- The arthropathy of hemochromatosis is a chronic progressive noninflammatory arthropathy.
- A Predilection for disease in the second and third MCP joints is notable, and enlargement of these joints is readily seen in the fingers when they are extended to form a V, as in the victory sign.
- Arthropathy often does not improve after iron depletion therapy (phlebotomy), and persistence of joint symptoms is often detrimental to patients quality of life.

## 221. Changes seen in early stage of type-2 diabetes mellitus

a) Decreased output of glucose from liver

b) Increase in C-peptide

c) Increase in GIP

d) All of the above

Correct Answer - C

### **Answer- C. Increase in GIP**

During the induction of insulin resistance, increased glucagon levels and increased glucose-dependent insulinotropic polypeptide (GIP) level accompany glucose intolerance. In the progression from normal to abnormal glucose tolerance, postprandial blood glucose levels increase first. Eventually, fasting hyperglycemia develops as suppression of hepatic gluconeogenesis fails.

## 222. Sinus arrhythmia is due to-

a) Sinus node disease

b) Exaggerated response to sympathetic system

c) Fluctuating parasympathetic response during respiration

d) Decreased heart rate in inspiration

Correct Answer - C

### **Answer-C. Fluctuating parasympathetic response during respiration**

Sinus rhythm with a beat-to-beat variation in the P-P interval (the time between successive P waves), producing an irregular ventricular rate.

Sinus arrhythmia is a normal physiological phenomenon, most commonly seen in young, healthy people.

- The heart rate varies due to reflex changes in vagal ( parasympathetic ) tone during the different stages of the respiratory cycle,
- Inspiration increases the heart rate by decreasing vagal tone.
- With the onset of expiration, vagal tone is restored, leading to a subsequent decrease in heart rate.

**223. A young male patient has history of diarrhea 3-4 weeks back, now complaining of right knee pain, swelling in other joints with signs of inflammation and dactylitis. The most probable causative organism is**

a) Shigella

b) Campylobacter

c) E coli

d) Yersinia

Correct Answer - A

**Answer- a. Shigella**

This is a case of reactive arthritis.

- Most common cause of reactive arthritis is chlamydia trachomatis.
- Reiter's syndrome is caused by preceding infection of genital tract by chlamydia trachomatis (M.C.) or GI tract by Shigella
- Salmonella, Ureoplasma ureolyticum, Yersinia, Campylobacter

**224. A 40 years old female is came in the department by describing "1 have worst headache of my life". The investigation of choice for this patient**

a) Four vessels carotid angiography

b) Computed tomography (CT)

c) MRI

d) No scan is required

Correct Answer - B

**Answer- B. Computed tomography (CT)**

It is a case of "acute subarachnoid hemorrhage".

- The explosive onset of severe, excruciating headache is a common feature of subarachnoid haemorrhage (SAH).

**Diagnosis of Subarachnoid hemorrhage**

- The hallmark of aneurysmal rupture is blood in the cerebrospinalfluid.
- More than 95% cases have enough blood to be visualized on a high quality non contract CT scan obtained within 72h.
- MRI can also be used to diagnose subarachnoid hemorrhage but CT is more sensitive than MRI for acute blood

**225. A 50 years old male patient with weight 65 kg, pH 7.05, PCO<sub>2</sub> 15 mmHg, HCO<sub>3</sub><sup>-</sup> 5 mEq/L and base excess/ deficit -40 mEq/L. How much sodium bicarbonate has to be given in first 4 hour**

a) 150 mEq

b) 300 mEq

c) 450 mEq

d) 600 mEq

Correct Answer - A  
**Answer- A. 150 mEq**

## 226. Bronchiectasis means.....of bronchi

-

a) Inflammation

b) Dilatation

c) Cavitation

d) All

Correct Answer - B

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

### Bronchiectasis

- Bronchiectasis is a disease characterized by permanent dilatation of bronchi and bronchioles caused by destruction of the muscle and elastic tissue, resulting from or associated with chronic necrotizing infections.
- Bronchiectasis is associated with ?Congenital conditions
- Cystic fibrosis
  - o Primary ciliary dyskinesia (Kartagener syndrome)
  - o Intralobar sequestration of the lung.
- Post infectious necrotizing pneumonia
  - o Bacteria → M. Tuberculosis, staph. aureus. H. influenzae, Pseudomonas.
  - o Viruses Adenovirus, HIV, influenza virus.
  - o Fungus --> Allergic bronchopulmonary aspergillosis.
- .. Bronchial obstruction ---> Tumor, foreign body, mucus impaction.
- ?. Other conditions → RA, SLE, IBD, post-transplantation.

**227. All of the following statements about silicosis are true, Except**

a) Pleural plaques

b) Predilection for upper lobes

c) Calcific Hilar Lymphadenopathy

d) Associated with tuberculosis

Correct Answer - A

**Answer is A (Pleural plaques):**

*Pleural plaques are characteristically associated with Asbestosis and not silicosis*

**Silicosis has predilection for upper lobes**

*'Radiographs typically show fine nodularity in the upper zones of the lung' –*

*'Rounded opacities appear in the upper lobes on chest radiograph' –*

**Silicosis is associated with calcific Hilar Adenopathy**

Calcification of hilar lymph nodes may occur in as many as 20% of cases and produce a characteristic "egg shell" pattern.

**Silicosis is associated with Tuberculosis**

*'Because silica is cytotoxic to alveolar macrophages, patients with silicosis are at greater risk of acquiring lung infections that involve these cells as a primary defense including mycobacterium tuberculosis, atypical mycobacteria and fungi'*

**228. A 60 years old male alcoholic presents with acute upper GI bleeding following bouts of vigorous vomiting. Most probable diagnosis is**

a) Acute gastritis

b) Boerhaave's syndrome

c) Mucosal and submucosal tear at cardiac orifice of stomach

d) Esophageal carcinoma

Correct Answer - C

**Answer- C. Mucosal and submucosal tear at cardiac orifice of stomach**

**Mallory - Weiss syndrome**

- Is characterized by mucosal tear at the gastroesophageal junction following a bout of forceful retching (or vomiting, coughing or straining).
- The clinical picture consists of acute upper gastrointestinal bleeding following bouts of retching or vomiting.

**Other frequent associations with Mallory-Weiss tears are**

- Hiatal hernia
- NSAIDs abuse
- Disease related bleeding diathesis.

## 229. Which of the following disease causes Achalasia

a) Kala azar

b) Chaga's disease

c) KFD

d) Schistosomiasis

Correct Answer - B

### **Answer- B. Chaga's disease**

- Achalasia cardia is a motor disorder of the esophageal smooth muscle.
- Classical clinical symptom is progressive dysphagia for both solids and liquids. Dysphagia is worsened by emotional stress and hurried eating.
- Regurgitation and pulmonary aspiration occur because of retention of large volumes of saliva and ingested food in the esophagus.
- Esophagitis with ulceration may occur with chronic retention of food.
- Pain is infrequent in classical achlasia but a variant called vigorous achlasic is characterized by chest pain and esophageal spasms that generate non-propulsive high-pressure waves in the body of the esophagus.

## 230. POEM [Per-oral endoscopic myotomy] is done for which of the following disease

a) Achalasia cardia

b) Hiatus hernia

c) Diffuse esophageal spasm

d) Esophageal carcinoma

Correct Answer - A

**Answer- A. Achalasia cardia**

**Treatment of achalasia cardia**

- The aim of treatment is to be relieve the functional obstruction at the cardia
- The two main methods to achieve this are
  1. Forceful dilatation or
  2. Esophageal myotomy (Heller's myotomy) with or without an antireflux procedure
  3. Per-oral endoscopic myotomy (POEM)
- It is now the preferred method by some surgeones.
- It is an endoscopic procedure in which myotomy is done under guidance of endoscope introduced by oral route.

## 231. BIRAD-4 means the breast lump is

a) Benign

b) Probably benign

c) Suspicious of malignancy

d) Malignant

Correct Answer - C

### **Answer-C. Suspicious of malignancy**

To assist in risk stratification, the American College of Radiology has developed a Breast Imaging Reporting and Data System (BIRADS) to standardize the criteria by which mamographic abnormalities are graded.

The BIRADS score is provided to guide the surgeon toward the likelihood of malignancy. Scores of 4 or 5 warrant biopsy.

## 232. Drug used for HER-2/neu positive breast cancer

a) Imatinib

b) Trastuzumab

c) Erlotinib

d) Cetuximab

Correct Answer - B

**Answer- B. Trastuzumab**

**Herceptin (Trastuzumab)**

- Herceptin is a humanized antibody and is used in breast cancers which are HER2 positive.
- HER2 stands for - human epidermal growth factor receptor.
- HER2 gene produces HER2 protein also called HER2 receptor.
- In HER2 (+ve) breast cancer the cancer cell have abnormally high number of HER2 genes per cell when this happens too much HER2 protein appears on the surface of these cancer cells.
- Currently transtuzumab is approved for HER2/neu overexpressing metastatic breast cancer in combination with paclitaxel as initial treatment or as monotherapy following chemotherapy.

**233. A female patient is presenting with BP of 90/60 and pulse rate 150/minutes after blunt abdominal trauma. How would you assess the patient**

a) USG

b) CT scan

c) X-ray

d) MRI

Correct Answer - A

**Answer- A. USG**

**The diagnosis of abdominal injury by clinical examination is unreliable. Blunt abdominal trauma requires desisive investigation and management:**

1. If patient is hemodynamically stable and can be shifted → CT scan is the best.
2. If patient is hemodynamically unstable (cannot be shifted) → USG is the investigation of choice.

**234. A male patient had blunt trauma to left side abdomen. How would you assess for the kidney injury if patient is hemodynamically stable**

a) USG

b) CT scan

c) X-ray

d) MRI

Correct Answer - B

**Answer- B. CT scan**

**Stable patient**

- Computed tomography has replaced intravenous urography as the primary modality for the assessment of suspected renal injuries. The investigation of choice is the multiphase, double - or triple-contrast CT scan, but this can misgrade the renal injury.
- More commonly, however, it does allow grading of renal injuries, and forms the basis for non-operative treatment, possibly up to, and inclusive of, non-vascular grade IV injuries and blunt renal artery thrombosis.

**235. A newborn child is presenting with regurgitation of all feeds and, develops coughing and cyanosis with feeding. Most probable diagnosis is**

a) CHPS

b) Esophageal atresia

c) Hirschsprug disease

d) Achalasia

Correct Answer - B

**Answer-B. Esophageal atresia**

- Esophageal atresia is the most common congenital anomaly of the esophagus. More than 90% are associated with tracheo esophageal fistula.
- The most common variety is the one where upper part of esophagus ends blindly and the lower part is connected to trachea by a fistula, TEF should be suspected in all cases of hydroamnion.
- There may be associated anomalies + VACTERL (vertebral, anorectal, cardiac, tracheal, esophageal, renal, radial, limb) syndrome.

## 236. Gold standard investigation for Gastro-esophageal reflux disease is

- a) Lower esophageal pH monitoring
- b) Lower esophageal & pharyngeal pH monitoring
- c) Endoscopic examination of esophagus
- d) X-ray pharynx

Correct Answer - A

### **Answer- A. Lower esophageal pH monitoring**

- 24 Hour pH monitoring for reflux esophagitis
- 24 hour pH monitoring (pH probe study), is the most sensitive test for diagnosis of gastroesophageal reflux. The test is performed by placing a catheter with a microelectrode that measures pH in the distal esophageal lumen for a duration of 24 hours. An episode of acid reflux usually is defined as an esophageal pH <4, for a duration greater than 15 - 20 seconds.

## 237. Which of the following helps in diagnosis of Laryngopharyngeal reflux

- a) Lower esophageal pH monitoring
- b) Lower esophageal & pharyngeal pH monitoring
- c) Endoscopic examination of esophagus
- d) X-ray pharynx

Correct Answer - B

### **Answer- B. Lower esophageal & pharyngeal pH monitoring**

- laryngopharyngeal reflux (LPR) is defined as the retrograde flow of stomach content to the larynx and pharynx whereby this material comes in contact with the upper aerodigestive tract. In contrast, gastroesophageal reflux disease (GERD) is the flow of stomach acids back into the esophagus.
- Multichannel intraluminal impedance and pH-monitoring studies are most useful in confirming LPR and assessing the magnitude of the problem. Demonstration of reflux events is best achieved with ambulatory multichannel intraluminal impedance (MCI) and pH-monitoring studies.
- 24 hour dual probe pH monitoring (simultaneous esophageal and pharyngeal pH) is used more often.

**238.** To distinguish between primary bacterial peritonitis from secondary peritonitis the following biochemical parameters in ascitic fluid has been used, EXCEPT:

a) Total protein > 1 g/dl

b) LDH greater than the upper limit of the normal of the serum

c) Glucose < 50 mg/dl

d) PMN count < 250 cells/mm<sup>3</sup>

### Correct Answer - D

Secondary bacterial peritonitis is the ascitic fluid infection caused by a surgically treatable intraabdominal source of infection. It can be divided into two groups

1. Those with free perforation of a viscus eg : duodenal ulcer perforation
2. Those with loculated abscess eg : perinephric abscess

The characteristic ascitic fluid findings in the setting of secondary bacterial peritonitis are

**Ascitic fluid PMN > 250 cells/mm<sup>3</sup>**

with at least two of the following criteria

1. Ascitic fluid total protein > 1 g/dl
2. LDH greater than the upper limit of the normal of the serum
3. Glucose < 50 mg/dl

If Ascitic fluid carcinoembryonic antigen (CEA) is > 5 ng/mL and alkaline phosphatase > 240 U/L indicates gut perforation.

**Ref:** AASLD practice guidelines: Hepatology, Vol.49, No.6 , 2009.

## 239. Locally aggressive odontogenic cysts with high chance of recurrence

a) Periapical cyst

b) Dentigerous cyst

c) Odontogenic keratocysts

d) Eruption cyst

Correct Answer - C

**Answer-C. Odontogenic keratocysts**

**Jaw cysts can be classified on the basis of origin of the cyst epithelium:**

- Odontogenic cysts develop from redundant epithelium left behind in the jaws as a result of tooth development.
- Developmental cysts arise at lines of fusion
- Pseudocysts are non-epithelial and lined only by connective tissue
- Keratocysts have aggressive biologic behavior and a high incidence of recurrence

**Odontogenic cysts**

- Radicular cysts - most common type of jaw cyst
- Dentigerous cyst - 2nd most common type of jaw cyst

**Eruption cyst**

- Odontogenic keratocysts
- Gingival (Alveolar) cyst of newborn
- Lateral Periodontal cysts
- Botryoid odontogenic cyst
- Glandular odontogenic cyst
- Calcifying odontogenic cysts (Gorlin cysts)

**240. 'N3' in Head & Neck cancer TNM staging refers to**

- a) Ipsilateral lymph node 3-6 cm
- b) Contralateral lymph node 3-6 cm
- c) Bilateral lymph nodes 3-6 cm
- d) Contralateral lymph node > 6 cm

Correct Answer - D

**Answer- D. Contralateral lymph node > 6 cm**

N3- Metastasis in a lymph node > 6 cm in greatest dimension

**241. Decreased Radio iodine uptake is / are seen in**

a) Toxic multinodular goiter

b) Grave's disease

c) Subacute thyroiditis

d) All

Correct Answer - C

Answer is C (Subacute thyroiditis)

*Mayo Clinic Internal Medicine Concise Textbook (2007)/181:*

*Harrison 18th/p 2917*

*Subacute Thyroiditis and Facitious thyroiditis are associated with decreased radioiodine uptake.*

## 242. Meckel's diverticulum is a remnant of ?

a) Stenson's duct

b) Wolffian duct

c) Mullerian duct

d) Vitellointestinal duct

Correct Answer - D

Ans. is 'd' i.e., Vitellointestinal duct

### **Meckel's diverticulum**

- Meckel's diverticulum is the persistent proximal part of the vitellointestinal duct which normally disappears during intrauterine life.
- It follows '*rule of 2*' :- present in 2% subjects, 2 inches (5 cm) long and is situated 2 feet (60 cm) proximal to ileocecal valve.
- It is attached to antimesenteric border of ileum.
- Its calibre is equal to that of the ileum.
- Its apex may be free or attached to umbilicus or mesentery by a fibrous band. o Vitellointestinal duct possesses all three coats of intestinal wall.

**243. Thrombophlebitis extending from thigh to involve iliofemoral vein [retrograde iliofemoral thrombophlebitis] causes**

a) Red leg

b) Blue leg

c) Purple leg

d) White leg

Correct Answer - D

**Answer- D. White leg**

- White leg (Phlegmasia alba dolens) → seen in iliofemoral thrombophlebitis.
- Phlegmasia alba dolens (white leg): This is characterised by arterial spasm resulting in pale, cold leg with diminished pulses, with blanching of the limb, more often seen in iliofemoral thrombophlebitis and is called milk leg of pregnancy.

## 244. Lumpy feeling in throat relieved on taking food is attributed to ?

a) Globus pharyngeus

b) Pharyngeal pouch

c) Diverticular disease

d) Esophageal atresia

Correct Answer - A

**Ans. is 'a' i.e., Globus Pharyngeus**

**Globus Pharyngeus**

- Symptom where in a patient describes something stuck in throat or a sensation of lump or tightness in throat which is relieved by taking food or talking.

**245. A patient is complaining of "lump in the throat" without any difficulty in deglutition. The muscle involved in the given condition**

a) Cricopharyngeal muscle

b) Thyropharyngeus muscle

c) Stylopharyngeus muscle

d) None

Correct Answer - A

**Answer- A. Cricopharyngeal muscle**

- The sensation of difficulty in swallowing (medically called dysphagia) in the absence of any apparent physical abnormality is often commonly described as having "lump in the throat".
- The most common cause of such a sensation is due to tightening of the cricopharyngeal muscle surrounding the esophagus, it is called Globus Pharyngeus or Globus Hystericus.

## 246. Cholecysto-caval line separates

a) Gall bladder & IVC

b) Porta hepatis & IVC

c) Right & left lobe

d) Quadrate & Caudate lobe of liver

Correct Answer - C

### **Answer-C. Right & left lobe**

- Cholecystocaval or cholecysto-vena caval line divides liver into right and left physiological lobes.
- Physiological right and left lobes are equally divided by an imaginary line (cholecysto-vena caval line) running from fossa for gall bladder to the groove for IVC. The physiological right and left lobes have separate biliary drainage and vascular supply, i.e. they are supplied respectively by right and left branches of portal vein and hepatic artery and bile is conveyed by the corresponding hepatic ducts (bile ducts ).

**247. Scoring system used for inflammation of the structure indicated by black line in the given figure (Also see colour pages)-**

a) Ranson's

b) Alvarado

c) APACHE

d) Balthazar

Correct Answer - B

**Answer- B. Alvarado**

- The given image is showing appendix. Thus examiner is asking about scoring system for appendicitis'

**Alvarado scoring system**

- The diagnosis of appendicitis is based primarily on clinical history and physical examination assisted by blood counts. A number of clinical and laboratory based scoring systems have been devised to assist diagnosis. The most widely used scoring system is Alvarado score.

The sum of all the scores are calculated for each patient and based on the results patients can be divided into three groups.

- Aggregate score 7-10 : Strongly predictive of appendicitis
- Aggregate score 5-6 : Equivocal
- Aggregate score 1-4 : Appendicitis can be ruled out.

| <b>Symptoms</b>                  | <b>Score</b> |
|----------------------------------|--------------|
| Migratory right iliac fossa Pain | 1            |
| Anorexia                         | 1            |
| Nausea/Vomiting                  | 1            |

**Signs**

|                                 |   |
|---------------------------------|---|
| Tenderness in right iliac fossa | 2 |
|---------------------------------|---|

|                    |   |
|--------------------|---|
| Rebound tenderness | 1 |
|--------------------|---|

|                      |   |
|----------------------|---|
| Elevated temperature | 1 |
|----------------------|---|

**Laboratory Findings**

|              |   |
|--------------|---|
| Leucocytosis | 2 |
|--------------|---|

|                                  |   |
|----------------------------------|---|
| Shift to the left of neutrophils | 1 |
|----------------------------------|---|

|                    |           |
|--------------------|-----------|
| <b>Total score</b> | <b>10</b> |
|--------------------|-----------|

## 248. Turricephaly is characterized by?

a) Short skull/Cranium

b) Narrow skull/Cranium

c) Tall skull/Cranium

d) Widened skull / Cranium

Correct Answer - C

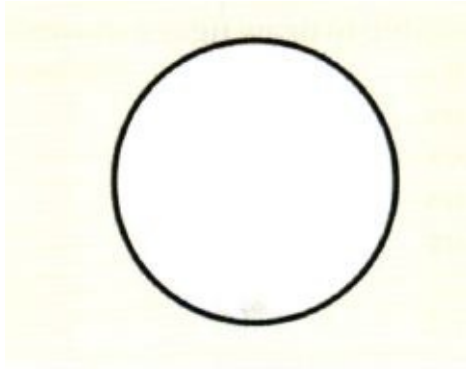
Ans. is 'c' i.e., Tall skull/Cranium

Premature fusion of coronal and sagittal sutures leads to a tall, tower-like skull known as turricephaly. Skull looks like a turret or cone shaped

### **Craniosynostosis**

- Turricephaly: There is cone shaped skull due to early closure of coronal, sphenofrontal and frontoethmoidal sutures. It is associated with *Pfeiffer syndrome*.

**249. A child is able to draw figure shown in the photograph at age of ?**



a) 2 years.

b) 3 years.

c) 4 years.

d) 5 years.

Correct Answer - B

Ans:B.)3 years.

A child is able to **draw circle** as shown in the photograph above at age of **3 years**.

**Developmental milestones**

| <b>DRAWING</b>   |                  |
|--|------------------|
| <b>Straight line</b>   | <b>18 months</b> |
| <b>Copies Circle</b>   | <b>3 years</b>   |
| <b>Copies Cross &amp; square, Copies bridge, man with 2-4 parts besides head, identifies longer of 2 lines</b> | 4 years          |
| <b>Copies triangle</b>   | <b>5 years</b>   |
| Diamond  | 7 years          |

|      |          |
|------|----------|
| Cube | 11 years |
|------|----------|

**250. Child starts making tower of 9 cubes by ?**

a) 18 months

b) 24 months

c) 30 months

d) 36 months

Correct Answer - C

Ans. is 'c' i.e., 30 months

|                  |          |
|------------------|----------|
| Bang 2 cube      | 8 month  |
| Tower of 2 cubes | 15 month |
| 4 cubes          | 18 month |
| 6 cubes          | 22 month |
| 7 cube           | 24 month |
| 9 cube           | 30 month |
| 10 cube          | 36 month |

## 251. Bidextrous grip is seen at what age?

a) 4 months

b) 5 months

c) 6 months

d) 7 months

Correct Answer - A

**Ans. A. 4 months**

### **FINE MOTOR MILESTONES:**

| <b>Age</b> | <b>Milestone</b>                              |
|------------|---|
| 4 months   | Bidextrous reach                              |
| 6 months   | Unidextrous reach                             |
| 9 months   | Immature pincer grasp                         |
| 12 months  | Mature pincer grasp                           |
| 15 months  | Imitates scribbling, tower of 2 blocks        |
| 18 months  | Scribbles, tower of 3 blocks                  |
| 2 years    | Tower of 6 blocks, vertical & circular stroke |
| 3 years    | Tower of 9 blocks, copies circle              |
| 4 years    | Copies cross, bridge with blocks              |
| 5 years    | Copies triangle                               |

FINE MOTOR MILESTONES

- DR.AKIF A.B



**252. Very low birth weight is less than:  
*September 2009, March 2013 (g)***

a) 1000 gm

b) 1500 gm

c) 2000 gm

d) 2500 gm

Correct Answer - B

Ans. B: 1500 gm

Very low birthweight is a term used to describe babies who are born weighing less than 1,500 grams.

## 253. Most common cause of syncope in children?

a) Breath holding spells

b) Hypoglycemia

c) Neurocardiogenic syncope

d) Hypovolemia

Correct Answer - C

Ans. is 'c' i.e., Neurocardiogenic syncope

- "The most common cause of childhood syncope is vasovagal syncope"
- "Autonomic syncope" or "vasovagal syncope" or " vasodepressor syncope" is by far the most common cause of syncope in children, accounting for at least 50 percent of cases.
- "In susceptible children, pain and emotional stress can trigger vasovagal syncope, which is the most common type" .
- Vasovagal syncope is also known as neurocardiogenic syncope.
- Syncope or fainting is a sudden brief and transient loss of consciousness with atony. Mostly it is due to disturbance in blood flow to the brain.
- Syncope is common in children and most episodes go unnoticed.

**254.** Which of the following statements regarding fetal circulation is correct?

- a) The liver and heart of the fetus receive blood with very high oxygen saturation
- b) PO<sub>2</sub> of fetal blood leaving the placenta is slightly greater than maternal mixed venous PO<sub>2</sub>
- c) The presence of fetal hemoglobin shifts the oxyhemoglobin dissociation to the right
- d) The foramen ovale closes during the third trimester unless the fetus has an atrial septal defect

**Correct Answer - A**

***Since the liver is supplied by umbilical venous blood from the placenta, and the heart and head receive blood before it has mixed with significant amounts of desaturated blood, these important organs receive blood that is relatively high in saturated oxyhemoglobin.***

The high rate of blood flow at the placenta and the significant resistance of the placenta to diffusion of oxygen result in blood in the umbilical vein that has a lower PO<sub>2</sub> (30 mm Hg) than the maternal mixed venous blood.

However, the left shift in fetal oxyhemoglobin concentration and the Bohr effect both act to increase the transport of oxygen to fetal tissues.

A number of significant differences in circulating patterns are present in the fetus.

**The foramen ovale remains open until after birth and a significant portion of inferior vena cava flow is shunted through it to the left.**

1/3 of blood enters directly from right atrium to left atrium (bypassing right ventricle) through foramen oval

The major portion of right ventricular output is shunted through the ductus arteriosus to the aorta, not the lungs.

The net effect of these shunts in the presence of high fetal pulmonary vascular resistance is very low fetal pulmonary blood flow.

At birth, these patterns normally are quickly changed to ex-utero patterns with high pulmonary perfusion.

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

## 255. Fetal alcohol syndrome is characterized by all except?

- a) Microcephaly
- b) Low intelligence
- c) Large proportionate body
- d) Septal defects of heart

Correct Answer - C

Ans. is 'c' i.e., Large proportionate body

### **Fetal alcohol syndrome**

High level of alcohol ingestion in pregnancy can cause damage to fetus, known as *fetal alcohol syndrome*.

o The harmful effects may be *due to alcohol itself or due to one of its breakdown products*. Some evidence suggests that alcohol may *impair placental transfer of essential amino acids and zinc*, both necessary for protein synthesis, which may account for IUGR.

o Characteristics of fetal alcohol syndrome include : ?

- 1) **IUGR** (not large proportionate body)
- 2) *Microcephaly*
- 3) *Congenital heart defects (ASD, VSD)*
- 4) *Mental retardation*
- 5) Facial abnormalities ---> Short palpebral fissures, epicanthal folds, maxillary hypoplasia, micrognathia, low set ears, smooth philtrum, thin smooth upper lip.
- 6) Minor joint anomalies
- 7) Hyperkinetic movements

**256.** A 24 week pregnancy scan showed frontal facial fetal defects suggestive of Moebius syndrome. Which of the following could account for the teratogenic effects?

a) Mifepristone

b) Misoprostol

c) Dinoprostone

d) Methotrexate

Correct Answer - B

MOEBIUS SYNDROME:

- Moebius syndrome is a rare neurological disorder characterized by weakness or paralysis (palsy) of multiple cranial nerves, *most often the 6<sup>th</sup> (abducens) and 7<sup>th</sup> (facial) nerves*. Other cranial nerves are sometimes affected. The disorder is present at birth (congenital).
- The abnormalities and severity of Moebius syndrome vary greatly from one person-to-another.
- The classically accepted **diagnostic criteria** include:
  - 1) facial paralysis or weakness affecting at least one but usually both sides of the face (7<sup>th</sup> cranial nerve),
  - 2) paralysis of sideways (lateral) movement of the eyes (6<sup>th</sup> cranial nerve); and
  - 3) preservation of vertical movements of the eyes.
- Less often, other cranial nerves, including the 5<sup>h</sup>, 8<sup>th</sup>, 9<sup>th</sup>, **10<sup>th</sup>**, 11<sup>th</sup>, and 12<sup>h</sup> may be affected.
- Infants with Moebius syndrome may drool excessively and exhibit crossed eyes (strabismus). Because the eyes do not move from

side-to-side (laterally), the child is forced to turn the head to follow objects. Infants who lack facial expression often are described as having a "mask-like" face that is especially obvious when laughing or crying. Affected infants may also have difficulties feeding, including problems swallowing and poor sucking. Corneal ulceration may occur because the eyelids remain open during sleep.

**MANAGEMENT:**

**Misoprostol** is a methyl ester prostaglandin E1 analogue used for cervical ripening and first trimester abortion. The first trimester exposure to Misoprostol might lead to the development of *Moebius syndrome*.

**Mifepristone** (RU - 486) is a potent progesterone receptor antagonist which is used in first trimester abortion and as a post-coital contraceptive. The most common side effects are vomiting, giddiness, pain or cramps, weakness and headache.

**Dinoprostone** is a PGE2 analogue used in cervical ripening along with misoprostol. There exists a risk for the patient to develop uterine rupture.

**Methotrexate** is a analogue of folic acid and it prevents the synthesis of DNA by inhibiting the enzyme dihydrofolate reductase. It is used in medical termination of pregnancy, medical management of ectopic pregnancy, prophylactic chemotherapy of hydatidiform mole and also in the treatment of placenta accreta.

The commonly reported side effects are leukopenia, thrombocytopenia, bone marrow aplasia, ulcerative stomatitis, hemorrhagic enteritis, elevated liver enzymes, alopecia, pneumonitis and diarrhea.

**Ref:** Berek and Novak's Gynecology, Issue 935, Volume 2007 By Emil Novak, Page 622; Syndromes of the Head and Neck By Robert J. Gorlin, Meyer Michael Cohen, Raoul C. M. Hennekam, Page 826; Pediatric Ophthalmology, Neuro-Ophthalmology, Genetics: By Birgit Lorenz, Michael C. Brodsky, Pages 70-71; Merritt's Neurology By Lewis P. Rowland, Timothy A. Pedley,



## 257. Tom-Smith arthritis causes destruction of

a) Upper end tibia

b) Lower end femur

c) Head of femur

d) Greater trochanter

Correct Answer - C

Answer-C. Head of femur

Tom smith arthritis is the septic arthritis of hip joint, occurs in infancy. At this stage head of the femur is cartilaginous and is rapidly and completely destroyed by the pyogenic process.

**On examination : -**

- Limb is short
- Hip movements are increased in all directions.
- There is instability with positive telescoping.

## 258. True about osteoid osteoma is

a) Onset before the age of 10 years

b) Bone scan shows decreased uptake

c) Radiolucent zone surrounded by sclerosis

d) Night pain not relieved by salicylates

Correct Answer - C

Answer- C. Radiolucent zone surrounded by sclerosis

- Osteoid osteoma is the most common true benign tumor of the bone.
- The characteristic feature is the formation of a small nidus of osteoid tissue, surrounded by a reactive zone of dense sclerosis (Sclerotic new bone formation).
- The tumor occurs between 10-30 years of age and is more common in males.
- On X-ray, there is a small radiolucent area (nidus) surrounded by dense sclerosis.
- Bone scan shows increased uptake in the nidus.
- The only treatment is wide en block excision along with internal fixation with or without bone grafting.

**259. A 26 years male person has got injury to mid-arm. Patient developed wrist drop, finger drop and loss of sensation on dorsum of hand. Patient is able to do elbow extension. The diagnosis is**

a) Very high radial nerve injury

b) High radial nerve injury

c) Low radial nerve injury

d) Posterior interosseus nerve injury

Correct Answer - B

Answer- B. High radial nerve injury

Radial nerve injury

**Radial nerve injury may be -**

A) veryHigh

- Injury is before the spiral groove
  - All muscles supplied by radial nerve are paralyzed
  - Inability to extend elbow, wrist (wrist drop), finger MP joint (finger drops)
  - Sensory loss of posterior surface of arm, forearm, lower lateral half of forearm, lateral 2/3d of Dorsum of hand and dorsum of lateral 3/z fingers upto DIP joint
- B) High
- Injury is between spiral groove and elbow
  - Triceps is spared - Elbow extension is preserved
  - Inability to extend wrist (wrist drop), finger drop
  - Sensory loss over lateral 2/3rd of Dorsum of hand an ddorsum of

lateral 3 and half fingers upto DIP joint (Including dorsum of first web space)

C) Low

- Injury is at or below the elbow
- Along with elbow extensors (triceps), wrist extensor (ECRL) are spared --> No wrist drop
- There is fingers drop
- Sensory loss over lateral 2/3rd of Dorsum of hand and dorsum of lateral 3 and half fingers upto DIP joint (Including dorsum of firstweb space)

## 260. Negative pressure dressing [vacuum dressing] is used for

a) Removal of eschar

b) Chronic non-healing diabetic ulcer

c) Unexplored fistulas

d) Untreated osteomyelitis

Correct Answer - B

Answer- B. Chronic non-healing diabetic ulcer

- Negative-pressure wound therapy (NPWT) is a therapeutic technique using a vacuum dressing to promote healing in acute or chronic wounds and enhance healing of second and third degree burns.
- Use in the treatment of diabetes-associated chronic leg wounds.

## 261. True about glass holding position of cost

a) Wrist in Plantar flexion

b) Wrist in ulnar deviation

c) Extends upto IP joint of thumb

d) Extends upto IP joints of fingers

Correct Answer - C

Answer- C. Extends upto IP joint of thumb

**Gloss holding position- Cast is given in scaphoid fracture (scaphoid cast)**

- It has following features of the cast
- .. Extent From proximal 3rd of forearm upto IP joint of thumb and MCP joint of fingers
- ?. Position of wrist: Slight (5-15 degree) dorsi flexion and radial deviation.

## 262. The shortest diameter of fetal head is :

a) Biparietal diameter

b) Suboccipito frontal diameter

c) Occipito frontal diameter

d) Bitemoral diameter

Correct Answer - D

Ans. **is d i.e.** Bitemporal diameter

Remember friends : *Transverse diameters of the fetal skull are smaller than Antero posterior diameters* Amongst the given options : Biparietal and Bitemporal diameters are transverse diameters, whereas suboccipito frontal and occipito frontal are anteroposterior diameters.

Now, the choice is between bitemporal and biparietal diameters.

For memorizing this : learn a mnemonic '*Miss Tina so pretty*', where transverse diameter are arranged in ascending order of their size.

|               |                            |            |
|---------------|----------------------------|------------|
| <b>Miss</b>   | Bimastoid diameter         | = 7.5 cms. |
| <b>Tina</b>   | Bi temporal diameter       | = 8 cms.   |
| <b>So</b>     | Super subparietal diameter | = 8.5 cms. |
| <b>Pretty</b> | Bi parietal diameter       | = 9.5 cms. |

So, our answer is bitemporal diameter (8 cms.)

Remember

**Extra Edge :**

**Anteroposterior diameters of fetal skull**

- *The longest diameter of fetal skull is mento vertical diameter (14 cms).*
- Longest diameter of pelvis — Transverse diameter of inlet and antero posterior diameter of

anatomic outlet.°

- Shortest diameter of pelvis diameter of outlet°
- Longest diameter of inlet
- Shortest diameter of inlet
- Longest AP diameter of inlet
- Shortest AP diameter of inlet
- Only AP diameter measured clinically

### Diameters

*Suboccipito-bregmatic* - 9.5cm (3 3/4") extends from the nape of the neck to the centre of the bregma

*Suboccipito-frontal* - 10cm (4") extends from the nape of the neck to the anterior end of the anterior fontanelle or centre of the sinciput

*Occipito-frontal* - 11.5cm (4 1/2") extends from the occipital eminence to the root of the nose (Glabella).

*Mento-vertical* - 14cm (5 1/2") extends from the mid point of the chin to the highest point on the sagittal suture.

*Submento-vertical* - 11.5cm (4 1/2") extends from junction of floor of the mouth and neck to the highest point on the sagittal suture.

*Submento-bregmatic* - 9.5 cm (3 3/4") extends from junction of floor of the mouth and neck to the centre of the bregma.

- Posterior sagittal
- Transverse diameter°
- Sacrocoityloid°
- Diagonal conjugate°
- Obstetric conjugate°
- Diagonal conjugate°

### Attitude of the head Presentation

Complete flexion  
Vertex

Incomplete flexion

Vertex  
Marked deflexion

Vertex  
Partial extension  
Brow

Incomplete extension  
Face

Complete extension  
Face

**263. The shortest diameter of fetal skull is :**

a) Sub occipito frontal

b) Sub mentobregmatic

c) Mento vertical

d) Submentovertical

Correct Answer - B  
Sub mentobregmatic

**264. Goodell's sign means:**  
***JIPMER 07***

a) Pulsation in the lateral vaginal fornix

b) Bluish color change in the vagina

c) Softening of the cervix from below upward

d) On bimanual palpation, the fingers can be approximated, as if nothing is in between

Correct Answer - C

Ans. C. Softening of the cervix from below upward

**265.** Non Immune Hydrops Fetalis is caused by:

a) CMV

b) Parvovirus

c) HSV

d) HIV

**Correct Answer - B**

Non immune hydrops can be caused by a variety of causes. Among the infectious cause, parvovirus can lead to non immune hydrops.

Hydrops fetalis refers to excessive accumulation of fluid in at least two fetal body cavities. It can be of two types, immune and non immune.

Immune type result from hemolysis of fetal RBC by maternal IgG antibodies to fetal antigen. Non immune type, is the result of any non antibody mediated process that lead to hydrops.

**Ref:** Fetal Medicine : Basic Science and Clinical Practice, 2nd Edition, Page 522; Ian Donald's Practical Obstetric Problems, 6th Edition, Page 218; William's Obstetrics, 23rd Edition, Page 627; Moffet's Pediatric Infectious Diseases : A Problem Oriented Approach, 4th Edition, Pages 377, 643.

## 266. true about TRIAD congenital rubella syndrome

a) PDA, cataract and deafness is seen

b) Hepatosplenomegaly, mental retardation, deafness

c) Chorioretinitis, multiorgan failure, pneumonitis

d) None of these

Correct Answer - A

Answer: A. PDA, cataract and deafness is seen

- Congenital rubella syndrome (CRS) can occur in a developing fetus of a pregnant woman who has contracted rubella, usually in the first trimester. If infection occurs 0–28 days before conception, the infant has a 43% risk of being affected.
- Infection in 2nd trimester – may be deafness only.
- >6 wks – no major abnormalities
- Diagnosis: Isolation of virus in cell cultures of throat samples, urine or other secretions.
- Detection of IgM in single serum sample shortly after birth.
- Persistence of Rubella IgG antibodies serum beyond 1 year or rising antibody titer anytime during infancy in an unvaccinated child

**267.** What is the treatment of choice in pregnant women with polyhydramnios and marked respiratory distress at 35 weeks of gestation?

a) Intravenous frusemide

b) Induction of labour

c) Amniocentesis

d) Artificial rupture of membranes

**Correct Answer - C**

In this clinical scenario amniocentesis is done to relieve the distress and to continue the pregnancy upto term.

Slow decompression is done at a rate of about 500ml per hour.

Normally 1-1.5litres of amniotic fluid is removed.

Because of slow decompression there is less chance of accidental hemorrhage, but fluid can reaccumulate soon.

So amniocentesis has to be repeated.

**Ref:** Textbook of Obstetrics By D.C.Dutta, 6th Edition, Pages 215-7

**268.** During an antenatal check up, USG of a 37 weeks pregnant grand primigravida shows amniotic fluid index of 4 cm.

**Assertion:** Sonographically, this is a case of oligohydramnios.

**Reason:** If it is a male fetus, posterior urethral valve could be present.

a) Both Assertion and Reason are true, and Reason is the correct explanation for Assertion

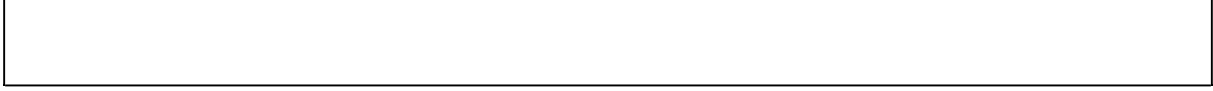
b) Both Assertion and Reason are true, and Reason is not the correct explanation for Assertion

c) Assertion is true, but Reason is false

d) Assertion is false, but Reason is true

Correct Answer - A

- 
- Oligohydramnios is the condition where the liquor amnii is deficient in amount to the extent of less than 200 ml at term.
- Sonographically, oligohydramnios is defined when the maximum vertical pool of liquor is less than 2 cm or when amniotic fluid index (AFI) is less than 5 cm .
- LUTO(Lower urinary tract obstruction)on ultrasonography, in a male fetus is almost always due to posterior urethral valves.
- The classical evidence on ultrasonography of LUTO is the presence of severe oligohydramnios, a grossly distended urinary bladder with increase in bladder wall thickness. The so called “keyhole” sign can be demonstrated if the proximal urethra too is distended.
- **MANAGEMENT:**At 37 weeks, fetal lung usually attain maturity. As there is severe oligohydramnios, delivery of the baby is appropriate in the given situation.



## 269. During progression of normal pregnancy, S/D ratio in umbilical artery ?

a) Decreases

b) Increases

c) Plateau

d) Not significant

Correct Answer - A

**Ans. is 'a' i.e., Decreases**

**The commonly used parameters in the umbilical artery doppler are:**

- SD ratio: systolic velocity/diastolic velocity
- Pulsatility index (PI) (Gosling index):  $(PSV - EDV) / TAV$
- Resistive index (RI) (Pourcelot index):  $(PSV - EDV) / PSV$
- Normally the parameters mentioned above should decrease progressively as the pregnancy advances, as there is increase in the end diastolic velocity due to growth and dilatation of umbilical circulation.
- Any deviation in the parameters is suggestive of either IUGR [weak fetal heart pump thus progressive decrease flow in the diastolic phase] or pre - eclampsia [high pressures in the downstream vessels progressively decrease the velocity of flow in the umbilical artery during fetal diastole].

**Thus, during progressive monitoring of the umbilical artery Doppler, as the severity of the disease increases, we observe first:**

- The decreased velocity in the end diastolic phase
- Then absent flow in the end diastolic phase followed by
- Reversal of flow in the end diastolic phase.



## 270. Most common ovarian tumor -

a) Serous cystadenoma

b) Choriocarcinoma

c) Teratoma

d) Fibroma

Correct Answer - A

Ans. is 'a' i.e., Serous cystadenoma

### Ovarian tumors

#### Surface epithelial tumors

- Serous tumor
    - o Mucinous tumor
    - o Endometrial tumor
    - o Clear cell tumor
    - o Brenner tumor
    - o Cysadenofibroma
  - Germ cell tumors
    - o Teratoma
    - o Dysgerminoma
    - o Endodermal sinus tumor
    - o Choriocarcinoma
  - Sex cord stromal tumors
    - o Fibroma
    - o Granulosa-theca cell tumor
    - o Sertoli-leydig cell tumor
- o Most ovarian tumors (65-70%) are surface epithelial tumors.  
o Serous cystadenoma being the most common.*

**271. At 28 weeks gestation, amniocentesis reveals a DOD 450 of 0.20 which is at the top of third zone of the liley curve. The most appropriate management of such a case is :**

a) Immediate delivery

b) Intrauterine transfusion

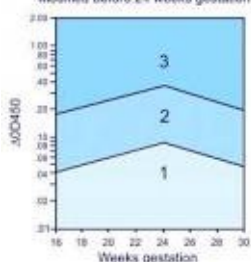
c) Repeat Amniocentesis after 1 week

d) Plasmapheresis

Correct Answer - B

Ans. is b i.e. Intrauterine transfusion

Liley amniotic zone boundaries  
Modified before 24 weeks gestation



Liley chart

- A chart that uses the spectrographic measurement of amniotic fluid bilirubin levels plotted against gestational age to estimate the severity of fetal hemolysis resulting from Rh isoimmunization.
- The chart is divided into three zones; a measurement falling in zone 1 indicates no disease or mild disease, while one falling in zone 3 indicates severe disease with impending fetal death.
- Lileys Zone I (low zone):
  - The fetus is unlikely to be affected

- The pregnancy can be continued till term.
- Lileys Zone II (mid zone):
  - Repeat amniocentesis by 2 weeks
  - Value upward -+ cordocentesis → hematocrit <30% → intrauterine transfusion to increase hematocrit to 40-45%.
  - Preterm delivery after 34 weeks
- Lileys Zone III (high zone):
  - The fetus is severely affected and death is imminent.
  - Pregnancy > 34 weeks → delivery.
  - Pregnancy < 34 weeks → cordocentesis → hematocrit < 30% → intrauterine infusion to raise hematocrit to 40 - 45%.
    - Preterm delivery may be needed after 34 weeks.

**272. A pregnant lady has delivered a baby 35 minutes back. However, placenta has not been delivered. What should be the next line of management.**

a) Controlled cord traction

b) Manual removal of placenta

c) Hysterotomy & removal of placenta

d) Administration of tocolytic drug

Correct Answer - B

**Ans. is 'b' i.e., Manual removal of placenta**

**Manual Extraction:**

- If the placenta has not delivered after 30 minutes, or if separation has occurred, without delivery of the placenta, manual removal may be performed to reduce excessive blood loss. Injection of oxytocin into the umbilical vein is a safe procedure and may prevent the need for manual removal of the placenta in some women. Intrauterine bacterial contamination is a theoretical risk of manual extraction, but is not a common complication.

**273.**

## Elective caesarion section in HIV infected pregnant woman is done in ?

a) All cases

b) All primipara

c) If viral load > 1000 /ml

d) Only in premature rupture of membrane

Correct Answer - C

**Ans. is 'c' i.e., If viral load > 1000 /ml**

A scheduled cesarean delivery (sometimes called a C-section) can reduce the risk of mother-to-child transmission of HIV in women who have a **high viral load (more than 1,000 copies/mL) or an unknown viral load near the time of delivery**. A cesarean delivery to reduce the risk of mother-to-child transmission of HIV is scheduled for the 38<sup>th</sup> week of pregnancy, 2 weeks before a woman's expected due date.

**274. A 38 weeks pregnant lady delivered baby without upper limb. What can be the cause ?**

a) Amniotic band

b) True knot of umbilical cord

c) Genetic abnormality

d) None

Correct Answer - A

**Ans. is 'a' i.e., Amniotic band**

- It is a case of limb reduction defect or congenital amputation in which there is defect in formation of a part of limb or the entire limb.
- The exact cause of congenital amputation is unknown and can result from a number of causes. However, most cases show that the first three months in a pregnancy are when most birth defects occur because that is when the organs of the fetus are beginning to form.
- One common cause is amniotic band syndrome, which occurs when the inner fetal membrane (amnion) ruptures without injury to the outer membrane (chorion).
- Fibrous bands from the ruptured amnion float in the amniotic fluid and can get entangled with the fetus, thus reducing blood supply to the developing limbs to such an extent that the limbs can become strangulated, the tissues die and are absorbed into the amniotic fluid.

## 275. Viability of fetus is beyond ?

a) 25 weeks

b) 28 weeks

c) 30 weeks

d) 32 weeks

Correct Answer - B

**Ans. is 'b' i.e., 28 weeks**

Viability means the physical ability of a fetus to lead a separate existence after birth apart from its mother, by virtue of a certain degree of development. A child is viable after 210 days (7 months) of intrauterine life, and in some cases after 180 days (6 months) but in most of these cases fetus is immature.

**276. Placental enlargement is seen in which of the following infections except?**

a) Toxoplasma

b) CMV

c) Parvovirus

d) Plasmodium

Correct Answer - D

**Ans. D.Plasmodium**

**Maternal**

- Maternal diabetes
- Rh incompatibility
- Anemia
- Chronic intrauterine infection: TORCH (Toxoplasmosis, rubella, CMV, herpes), syphilis, VZV, Parvovirus B-19.
- Alpha – thalassemia

**Fetal**

- High output heart failure
- Umbilical vein obstruction
- Hydrops fetalis (all causes)
- Sacrococcygeal teratoma
- Beckwith - Wiedemann syndrome
- Placental :Choriocarcinoma, Hemorrhage, hydatidiform mole
- Finnish type nephrotic syndrome

## 277. Minimum hCG level that a urine pregnancy test can detect is?

a) 5 m IU/ ml

b) 10-20 m IU/ ml

c) 20-30 m IU/ ml

d) 35 m IU/ ml

Correct Answer - A

5 m IU/ ml REF: Danforth's Obstetrics and Gynecology, 10th Edition page 4, Current OB/GYN > Chapter 9. Normal Pregnancy & Prenatal Care > Normal Pregnancy >

URINE PREGNANCY TEST:

Sensitive, early pregnancy test measure changes in levels of hCG. There is less cross-reaction with luteinizing hormone (LH), follicle stimulating hormone (FSH), and thyrotropin, which all share common a subunit with hCG, when the  $\beta$  subunit of hCG is measured. hCG is produced by the syncytiotrophoblast 8 days after fertilization and may be detected in the maternal serum after implantation occurs, 8-11 days after conception. hCG levels peak at approximately 10-12 weeks of gestation. Levels gradually decrease in the second and third trimesters and increase slightly after 34 weeks. The half-life of hCG is 1.5 days. After termination of pregnancy levels drop exponentially. Normally, serum and urine hCG levels return to nonpregnant values ( $< 5$  m U/mL) 21-24 days after delivery.

- hCG is measured in milli-international units per milliliter (m IU/ml)
- The detection of greater than 35 m IU of human chorionic gonadotropin (hCG) in the first morning void has a very high specificity for pregnancy

| /3 Hcg in m IU/ml     | Result  |
|-----------------------|---|
| Under 5 m IU/ml       | Negative- Not pregnant                              |
| Between 5-25 m IU/ml: | "Equivocal"- Maybe pregnant may not be- Repeat test |
| Over 25 m IU/ml       | Positive- Pregnant                                  |

**278. Carboprost, used for 2' trimester abortion, is analogue of ?**

a) PGE2

b) PGF2a

c) PGI2

d) PGD2

Correct Answer - B

**Ans. is 'b' i.e., PGF2a**

Carboprost is a synthetic prostaglandin analogue of  $\text{PGF}_{2\alpha}$  (specifically, it is 15-methyl- $\text{PGF}_{2\alpha}$ ) with oxytocic properties.

Carboprost induces contractions and can trigger abortion in early pregnancy. It also reduces postpartum bleeding.

## 279. True about carcinoma vulva

a) Spreads to superficial inguinal nodes and Radiotherapy given

b) Spreads to iliac nodes

c) Seen after menopause and Viral predisposition

d) All

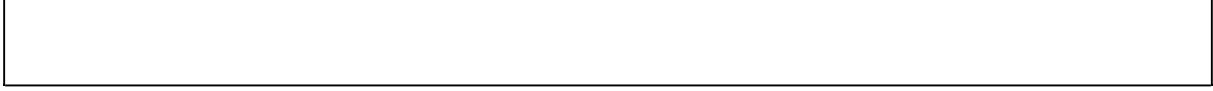
Correct Answer - D

**Ans. is a, b and c i.e. Spreads to superficial inguinal nodes: Spreads to iliac nodes: Seen after menopause; Viral predisposition; and Radiotherapy given Vulva) cancer :**

- 2 - 4% of all malignancies of female genital tract.
- Age : occurs in 6<sup>th</sup> or 7<sup>th</sup> decade.
- Most common histologic type is epidermoid cancer (squamous cell CA)
- Nulliparous, women of low parity are predisposed to vulva, CA.
- The etiology is same as of carcinoma in situ cervix (that is viral predisposition by viruses - **HIV, HPV, HSV-I1**).
- Most common site – Labium majora followed by clitorus and labium minora.
- Associated with cervical and ovarian CA in 20% case.
- Presents with pruritus, vulva! swelling, lump or ulcer.
- **Spread of tumor** – mainly by direct spread and lymphatics.
- *First superficial inguinal nodes are involved and then spreads to deep nodes and via glands of Cloquet to external iliac nodes, obturator and common iliac nodes in late stages.*

**Treatment :**

- *Early stages* : vulvectomy with inguinal nodes dissection.
- *Late stages* : chemotherapy and radiotherapy.



**280. A mother comes with history of antenatal fetal death due to neural tube defect in first child. What is the amount of folic acid you will prescribe during pre-conceptual counseling?**

a) 4 micrograms/day

b) 40 micrograms/day

c) 400 micrograms/day

d) 4000 micrograms/day

Correct Answer - D

Ans: D. 4000 micrograms/day

(Ref Williams 24/e p1104; Nelson 20/e p2805, 20/e p2805, 19/e p2001)

- If a pregnancy is planned in high-risk women (previously affected child with neural tube defects), supplementation should be started with 4 mg (= 4000 microgram) of folic acid daily, beginning 1 month before the time of the planned conception.

**Recommendations:**

- By U.S. Public Health Service.
- Folic acid 0.4 mg daily - For all women of childbearing age & ones capable of becoming pregnant.
- Folic acid 4 mg (= 4000 microgram) daily - For planned pregnancy in high-risk women (previously affected child) - Beginning 1 month before time of planned conception.

Areas addressed by the preconception care :

- Nutritional conditions

- Vaccinepreventable diseases
- Genetic conditions
- Environmental health
- Infertility/ subfertility
- Female genital mutilation
- Too early, unwanted and rapid successive pregnancies
- Sexually transmitted infections
- Human immunodeficiency virus (HIV)
- Interpersonal violence
- Mental health
- Psychoactive substance use
- Tobacco use

**281. At 28 weeks of pregnancy a G1Po woman urine dipstick test is showing mild glycosuria. Next line of management is ?**

a) Nothing is require

b) Glucose challenge test

c) Glucose tolerance test

d) Start antidiabetic drug

Correct Answer - B

**Ans. B i.e., Glucose challenge test**

- Glucosuria in pregnancy (without elevation of serum glucose) → Occurs due to decrease in renal threshold of glucose.
- Gestational diabetes → Diabetes/glucose intolerance diagnosed (first recognized) in pregnancy, in otherwise normal women.  
Type 1 /Type 2 diabetes in pregnancy → A known diabetic women becomes pregnant
- In the given question, the mother was normal before the pregnancy. It rules out diabetes mellitus type 1 or type 2.
- In the given situation, we must differentiate between normal glycosuria of pregnancy and gestational diabetes.
- This differentiation is done by glucose challenge test, i.e. screening test for gestational diabetes.
- In the given question, the mother was normal before the pregnancy. It rules out diabetes mellitus type 1 or type 2.
- In the given situation, we must differentiate between normal glycosuria of pregnancy and gestational diabetes.
- This differentiation is done by glucose challenge test, i.e. screening

test for gestational diabetes.

## 282. Turner syndrome - karyotyping is?

a) 45, X0

b) 46 X0

c) 47 XXX

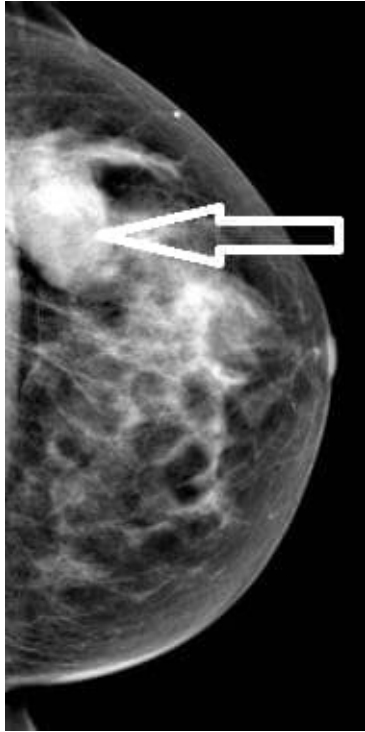
d) Trisomy 21

Correct Answer - A

Ans. is 'a' i.e., 45 X0

- 45X0
- Lymphadema of dorsum of hand & fat
- Loose skin fold at nape of neck
- Short stature
- Short Neck (with webbing of neck)
- Anomalies ear
- Broad shield like chest with widely spaced small nipple
- Renal anomalies (Horse-shoe, double or cleft renal pelvis)
- Coart of aorta

**283. Identify the condition shown on Mammography in Photograph**



a) Carcinoma

b) Abscess

c) Cyst

d) Fibroadenoma

Correct Answer - D

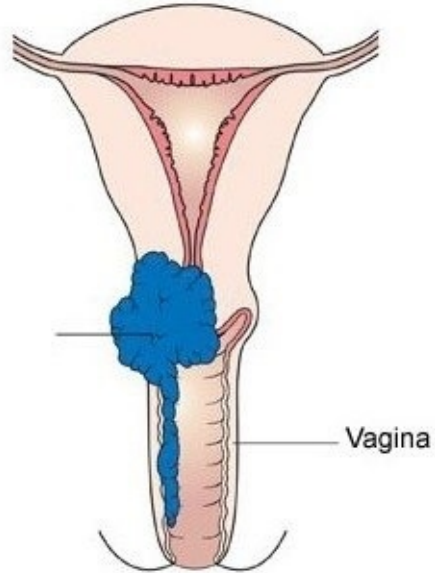
**Fibroadenomas** of the breast are benign tumors characterized by an admixture of stromal and epithelial tissue

Since both fibroadenomas and breast cancer can appear as similar lumps, it is currently recommended to perform ultrasound analyses and possibly tissue sampling with subsequent histopathologic

analysis in order to perform diagnosis.

A fibroadenoma is usually diagnosed through clinical examination, ultrasound or mammography, and often a needle biopsy sample of the lump

**284. Stage of Cervical Cancer shown in the Photograph is**



a) IB

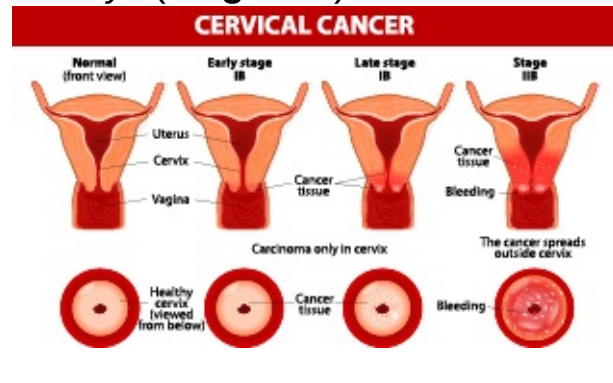
b) IIB

c) III B

d) IVA

Correct Answer - C

Following a staging evaluation, a **stage III cancer** is said to exist if the **cancer** has extended beyond the **cervix** to the lower portion of the vagina (**stage IIIA**), has extended to one or both sides of the pelvis (**stage IIIB**), or causes a blockage of drainage from the kidneys (**stage IIIB**)



**285. A patient presented with on examination. Most common cause of genital Herpes is?**



a) HSV-1

b) HSV-2

c) HSV-3

d) HSV-4

Correct Answer - B

HSV-2

Both HSV-1 and 2 can cause genital and oral - facial infection but reactivation at oral - facial site is more common with HSV-1 and at genital site with HSV-2

**286. A 50 years old patient presented to the skin OPD with erythematous scaly plaques over trunk and extremities for last 10 years. Lesions are occasionally itchy. There is history of remission and relapse with exacerbation during winters. Most likely diagnosis is?**

a) Lichen planus

b) Psoriasis vulgaris

c) Pityriasis rosea

d) Seborrhic dermatitis

Correct Answer - B

**Ans: B. Psoriasis vulgaris**

(Ref: Neena Khanna 4<sup>th</sup>/e p. 40-48; Roxburg 14<sup>th</sup>/e p. 128-42; Venkataram 1<sup>st</sup>/e p. 491)

**Psoriasis (psoriasis vulgaris):**

- Psoriasis is chronic dermatosis characterized by unpredictable course of remission and relapse and presence of well defined silvery white scaly papules and plaques on erythematous base.
- Aggravated in winter.
- Lesions are mildly pruritic or non-pruritic.

## 287. Identify the condition?



a) Guttate psoriasis

b) Lichen planus

c) Pityriasis rubra pilaris

d) Verruca plana

Correct Answer - A

**Ans. A. Guttate psoriasis**

(Ref: Neena I(hanna 4th/e p. 40-48; Roxburg IVh/e p. 128-42; Venkataram [t/e p. 49]

- The Picture is showing multiple, discrete, guttate (drop-like) papuloplaques with a pinkish hue with fine scales, on back.
- Classical presentation of guttate psoriasis.
- Occurs in children and adult.
- Precipitated by upper respiratory tract infection (Streptococcal tonsitis).

**288. A patient presented with the following skin condition over the back. She is also under treatment for Epilepsy. What is the most probable diagnosis?**



a) Staphylococcal Scalded Skin Syndrome

b) Toxic Shock Syndrome

c) Toxic Epidermal Necrolysis

d) Bullous Pemphigoid

Correct Answer - C

Ans:C.)Toxic Epidermal Necrolysis

**Toxic epidermal necrolysis**

- It is a potentially life-threatening dermatologic disorder characterized by widespread erythema, necrosis, and bullous detachment of the epidermis and mucous membranes, resulting in exfoliation and

possible sepsis and/or death .

- Stevens-Johnson syndrome (also known as erythema multiforme major) is a manifestation of the same process involved in TEN, with the latter involving more extensive necrotic epidermal detachment. TEN involves more than 30% of the body surface, whereas SJS involves less than 10%
- TEN is most commonly drug induced.
- The most commonly implicated agents include the following:
  - Sulfonamide antibiotics
  - Antiepileptic drugs
  - Oxycam nonsteroidal anti-inflammatory drugs
  - Allopurinol
  - Nevirapine
  - Abacavir
  - Lamotrigine.
- Infectious agents (ie, *Mycoplasma pneumoniae*, herpes virus, hepatitis A), immunizations, and bone marrow or solid organ transplantation have also been associated with TEN.
- Patients with toxic epidermal necrolysis (TEN) may describe an influenza like prodrome lasting from 1 day to as long as 3 weeks characterized by the following:
  - Malaise, rash, fever, cough, rhinitis, myalgia, etc
- The cutaneous eruption begins as a poorly defined, erythematous macular rash with purpuric centers.
- Over a period of hours to days, the rash coalesces to form flaccid blisters and sheetlike epidermal detachment.
- The lesions predominate on the torso and face, sparing the scalp.
- The epidermis sloughs in sheets, leaving a characteristic moist, denuded dermis .
- A positive Nikolsky sign is evident when the application of slight lateral pressure to the epidermal surface results in the epidermis easily separating from its underlying surface.
- Mucous membrane erosions (seen in 90% of cases) generally precede the skin lesions by 1-3 days.
- The most frequently affected mucosal membrane is the oropharynx, followed by the eyes and genitalia.
- Treatment:

- The mainstay of treatment is supportive care until the epithelium regenerates. Supportive measures include isolation, fluid and electrolyte balance, nutritional support, pain management, and protective dressings. Withdraw the offending agent, if one is identified, as soon as possible.

**289. A child after taking medicine for fever presented with following picture. Most likely diagnosis of the following is?**



a) Erythema multiforme

b) Impetigo contagiosa

c) Steven johnson syndrome

d) Staphylococcal scalded skin syndrome

Correct Answer - C

**Ans. C. Steven johnson syndrome**

- Showing hemorrhagic crusting of lips after taking drugs for fever, which is common clinical picture in Steven-johnson syndrome.

## 290. Identify the condition?



a) Erythema multiforme

b) Palmo-planter psoriasis

c) Secondary syphilis

d) Contact dermatitis

Correct Answer - A

**Ans. A. Erythema multiforme**

Rel Behl 10th/e p 117]

- Given picture is showing multiple target lesions i.e. concentric rings of different shades of erythema which is characteristic of erythema multiforme.
- Palms and soles are common sites.

**291. A 37 year old female patient presented with very itchy annular scaly erythematous plaques in inframammary folds. She applied a steroid cream over it after which it started spreading towards periphery. Following is the picture of the lesion. Most likely diagnosis is?**



a) Tinea corporis

b) Candidiasis

c) Inverse psoriasis

d) P.versicolor

Correct Answer - A

**Ans. A. Tinea corporis**

- The clinical description given in question and the picture indicate towards the diagnosis of tinea incognito i.e. tinea infection altered by

steroid use.

- Tinea corporis is dermatophytosis of the trunk, legs or arms, especially on glabrous skin.
- It may have a variety of appearances.
- Most easily identifiable are the enlarging raised red rings with a central area of clearing (ringworm).
- The same appearances of ringworm may also occur on the scalp (tinea capitis), beard area (tinea barbae) or the groin (tinea cruris, known as jock itch or dhobi itch).

**292.** A 43 year old female presented with pigmentation on neck, axilla and other flexures. She is diabetic for few years and not under control. She is worried about the chance of skin cancer. All of the following are premalignant conditions, EXCEPT:

a) Solar keratosis

b) Acanthosis nigricans

c) Bowen's disease

d) Porokeratosis

#### Correct Answer - B

- **Acanthosis nigricans** is probably the most readily recognized skin manifestation of diabetes and most cases are linked to obesity and insulin resistance.
- True association is rare between acanthosis nigricans and malignancy.
- It presents as brown to gray-black papillomatous cutaneous thickening in the flexural areas, including the posterolateral neck, axillae, groin, and abdominal folds.

**Ref:** Kalus A.A., Chien A.J., Olerud J.E. (2012). Chapter 151. Diabetes Mellitus and Other Endocrine Diseases. In L.A. Goldsmith, S.I. Katz, B.A. Gilchrest, A.S. Paller, D.J. Leffell, N.A. Dallas (Eds), Fitzpatrick's Dermatology in General Medicine, 8e.

## 293. Bilateral symmetrical maculopapular rash on palms 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 entry of spirochete. Primary chancre is well defined punched out ulcer which has following characteristics ?
- Single lesion
- Painless
- Avascular (non-bleeding)
- Firm induration
- 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.*

**294. Drug of choice for reversal of is neuromuscular blockade by vacuronium-**

a) Edrophonium

b) Neostigmine

c) Sugamadex

d) Pyridostigmine

Correct Answer - C

**Ans: C. Sugamadex**

(Ref: KDT 7h/e p. 355; Basic of Anesthesia e book - 157)

- Sugamadex provides faster reversal of vacuronium - induced neuromuscular blockade compared with neostigmine.
- A modified gamma-cyclodextrin with high affinity towards vacuronium & recuronium.

## 295. Etomidate causes all except ?

a) Coronary insufficiency

b) Decreased steroid

c) Decreases Intracranial tension

d) Nausea and vomiting

Correct Answer - A

Ans. is 'a' i.e., Coronary insufficiency

- **Etomidate produces little cardiovascular and respiratory depression** --> Agent of choice for cardiovascular surgeries (bypass, aneurysms, valve surgery). Etomidate is the most cardiostable inducing agent.
- Etomidate has the highest incidence of nausea and vomiting amongst inducing agents 30%-40%.
- It can produce hiccups and myoclonus.
- **Superficial thrombophlebitis and pain on injection may occur** —  
> Pain can be reduced by using larger vein and injecting lidocaine just before etomidate.

**296. Current recommendations for minimum preoperative starving period for solid food (NPO for solid food]-**

a) 4 hours

b) 6 hours

c) 10 hours

d) Overnight

Correct Answer - B

**Ans: B. 6 hours**

[Ref: An update report by American society of Anesthesiologist]

- Light meal (Solid food) - 6hrs.
- Heavy meal (Fried foods/meat) - 8hrs.

**297. A patient was undergoing surgical procedure under general anaesthesia. Suddenly he developed tachycardia, sweating, hypertension and tachypnea. What is the best immediate step to manage the situation-**

a) IV beta-blocker

b) Abandon the surgery

c) Deepen the plane of Anaesthesia

d) Nothing is required

Correct Answer - C

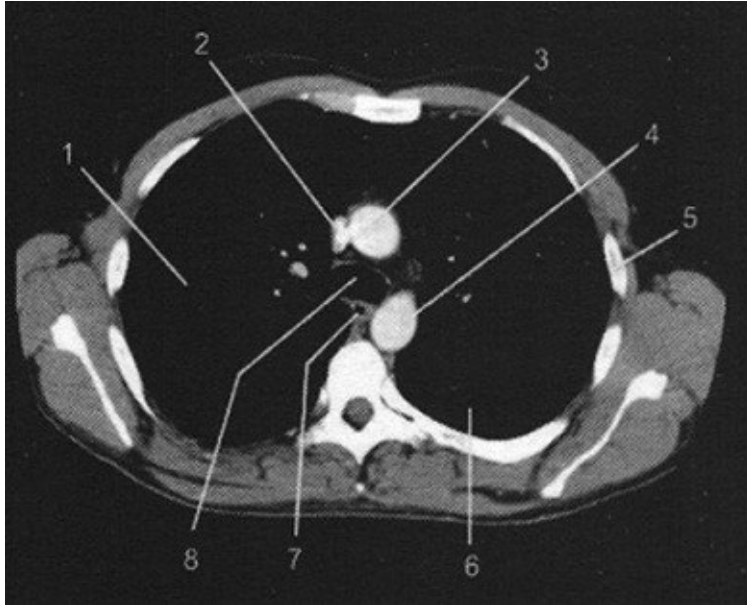
**Ans: C. Deepen the plane of Anaesthesia**

[Ref: Miller's &/e p. 1253]

- The given patient is showing signs of light anaesthesia and intraoperative awareness.
- Signs of light anaesthesia (intra-operative awareness) are:
  1. Tachycardia
  2. Hypertension
  3. Lacrimation
  4. perspiration (sweating)
  5. Eye movement
  6. Preserved reflexes (coughing)
  7. Movement on painful stimuli
  8. Laryngospasm / Bronchospasm
  9. Tachypnea
  10. p waves on EEG

- It intraoperative clinical signs suggest that a patient is having light anaesthesia intraoperative awareness, anaesthesia should be deepened immediately.

**298. In The Given axial reconstruction CT scan of chest, Number-3 Denotes?**



a) Arch of aorta

b) svc

c) Trachea

d) rvc

Correct Answer - A

**Ans: A. Arch of aorta**

[Rel Textbook of sectional Anatomy learning system 2d/e p' 45]

**In the given image :**

- is Left lung
- isSVC
- is Ascending thoracic aorta
- is Descending thoracic aorta

- is Rib
- is Right lung
- isEsoPhagus
- is Trachea

**299. Appearance as represented by an arrow shown in the picture below is characteristic of ?**



a) Ulcerative colitis.

b) Crohn's disease.

c) Ileocaecal TB.

d) Hirschsprung disease.

Correct Answer - B

Appearance as represented by an arrow shown in the picture above represents **Hose-pipe appearance**, which is characteristic of **Crohn's disease**.

**Crohn's disease** is a chronic inflammatory disease of the digestive tract. Symptoms include abdominal pain and diarrhea, sometimes bloody, and weight loss.

**300. A female patient presented with recurrent Urinary tract infections. Imaging shows the following picture. What can be the most probable diagnosis?**



a) Duplication of Ureter

b) Congenital Megaureter

c) Ureterocele

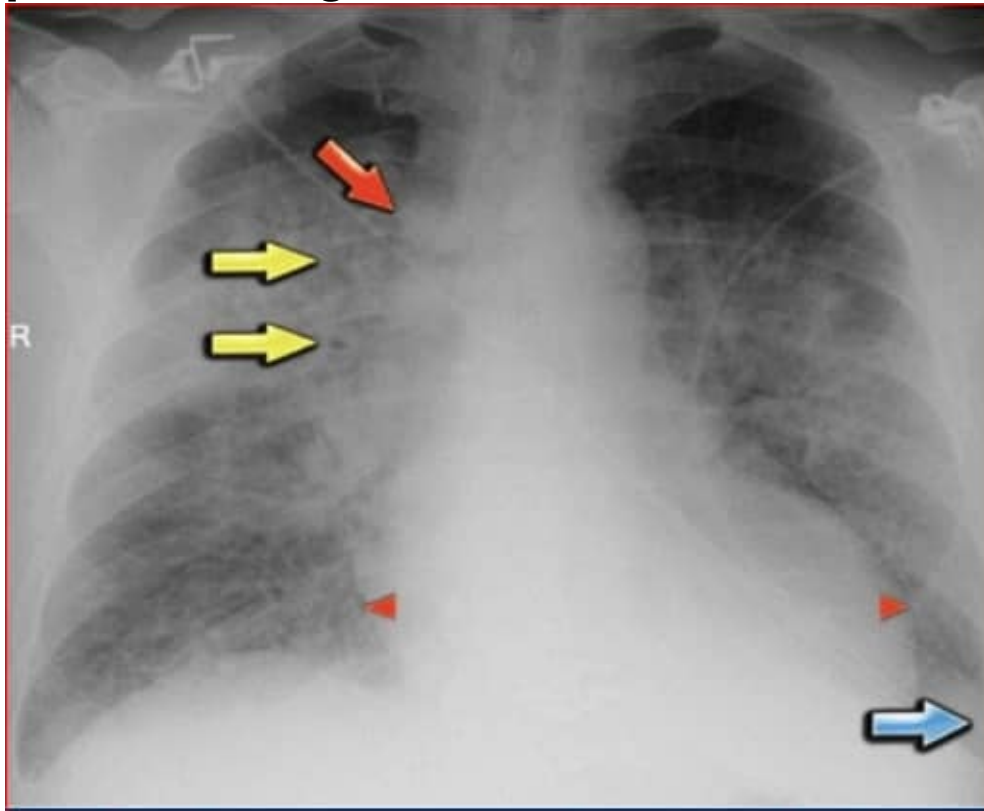
d) Urinary Stones

Correct Answer - C

**Ans. C. Ureterocele**

- Plain radiograph shows no calcification along the urinary tract. Post intravenous contrast radiograph shows dilatation of the left distal ureter showing a “cobra’s head” appearance and “radiolucent halo” effect. Findings represent intravesical ureterocele of left ureter.
- Ureterocele represents abnormal dilatation of the distal ureteric segment. Ureteroceles may be associated with either a single or a duplex ureter. Ureteric duplication is present in about 75% cases of ureteroceles. Ureteroceles have a female predilection.
- Ureteroceles can be further classified into simple and ectopic types.

**301. A patient who was admitted with severe dyspnoea .Chest X ray shows the following features.What can be the most possible diagnosis?**



a) Pulmonary Edema

b) Pulmonary Atelectasis

c) Pulmonary Hypertension

d) Pneumonia

Correct Answer - A  
Ans: A )Pulmonary Edema.

### Acute Pulmonary Edema

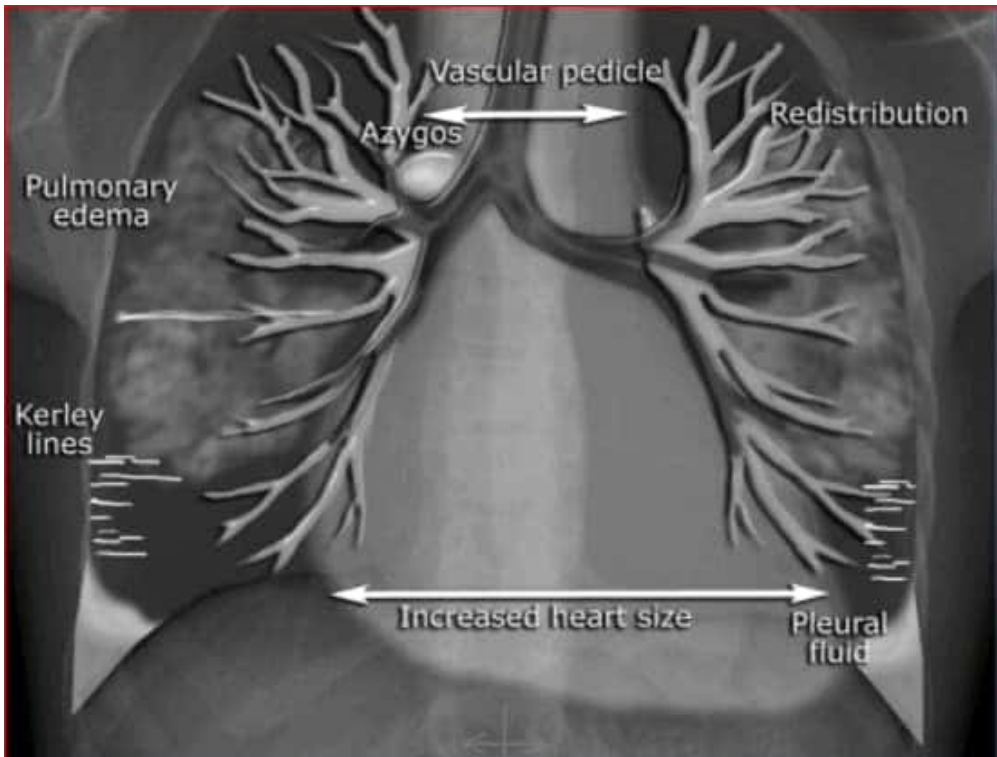
Image shows: The following signs indicate heart failure: alveolar edema with perihilar consolidations and air bronchograms (yellow arrows); pleural fluid (blue arrow); prominent azygos vein and increased width of the vascular pedicle (red arrow) and an enlarged cardiac silhouette (arrow heads).

### **Diagnosis is acute pulmonary edema:**

Dyspnea, restlessness and tachypnea.

Centrally located increased density on x-ray.

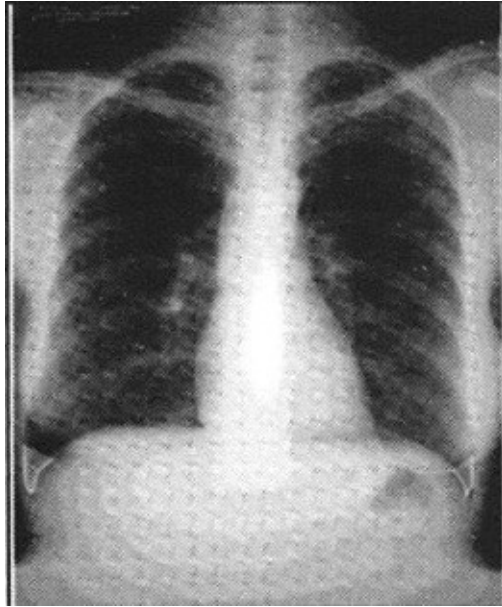
Batwing appearance on chest X-ray



### Stage of Congestive Heart Failure

|   |   |  |
|---|---|--|
| <b>Stage 1</b><br>Redistribuition<br>PCWP 13-18 mmHg    | → | Redistribuition pulmonary vessels<br>Cardiomegaly<br>Broad vascular pedicle<br>(non acute CHF)   |
| <b>Stage 2</b><br>Interstitial edema<br>PCWP 18-25 mmHg | → | Kerley lines<br>Peribronchial cuffing<br>Hazy contour of vessels<br>Thickened interlobar fissure |
| <b>Stage 3</b><br>Alveolar edema<br>PCWP > 25 mmHg      | → | Consolidation<br>Air bronchogram<br>Cottonwool appearance<br>Pleural effusion                    |

**302. The yellow mark on your right side in the given chest X-ray represents**



a) Left costophrenic angle

b) Right costophrenic angle

c) Left cardiophrenic angle

d) Right cardiophrenic angle

Correct Answer - A

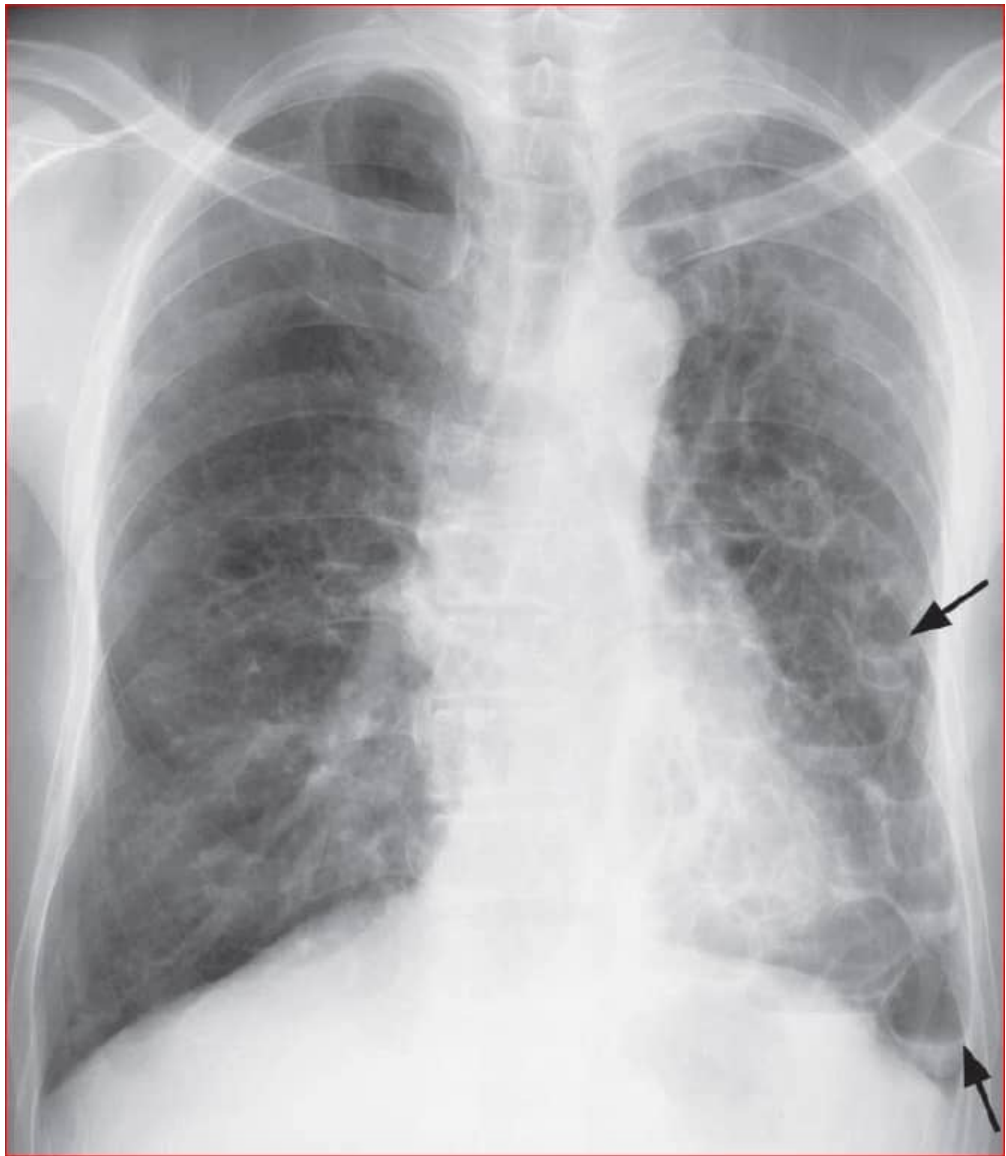
**Ans: A. Left costophrenic angle**

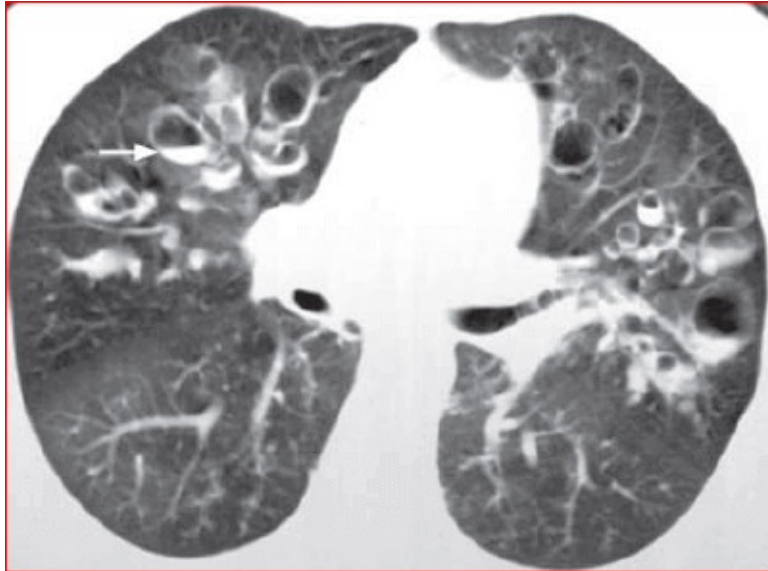
**In the given figure**

- Right yellow mark → Left costophrenic angle
- Left yellow mark → Right costophrenic angle
- Right red mark → Left cardiophrenic angle
- Left red mark → Right cardiophrenic angle

**303. A 55-year-old non-smoker presented with on and off haemoptysis and purulent sputum for 1 year.**

**There was no fever or constitutional symptoms. Physical examination showed finger clubbing and coarse crepitations over the lung base. Blood tests were essentially normal and an initial CXR was performed. CT scan was also performed. What is the radiological diagnosis?**





a) Pneumoconiosis

b) Bronchiectasis

c) Emphysema

d) Lung Abscess

Correct Answer - B

Ans: B.) Bronchiectasis.

Image shows: Frontal chest radiograph showing clusters of cystic spaces containing air-fluid levels (arrows) in the left mid and lower zones due to retained secretions in dilated bronchioles in bronchiectasis.

### **Cystic bronchiectasis**

The air-fluid levels within the cystic spaces represent retained secretions within the dilated bronchioles.

A CT scan was performed as it better assesses the extent and severity of the disease. It showed:

- String of cysts appearance representing cystic dilatation of

bronchioles

- Thickening of bronchial wall indicating on-going inflammatory change

- Air-fluid level representing retained bronchial secretions

Discussion

- Majority of bronchiectasis occurs peripherally in lower lobes.

Unusual sites of involvement raise the suspicion of certain aetiologies of bronchiectasis, e.g. upper zone predominance in cystic fibrosis, proximal central zone involvement in allergic bronchopulmonary aspergillosis.

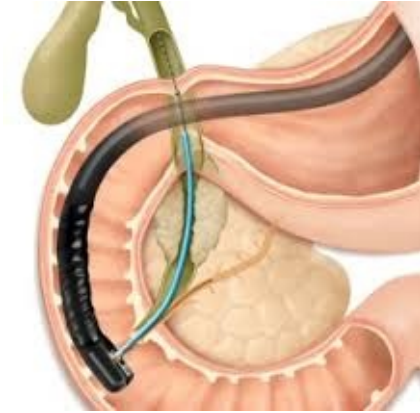
- In the past bronchogram was regarded as the gold standard for diagnosis by demonstrating dilated bronchioles outlined by contrast. However, it has been replaced by CT as it offers a noninvasive method for diagnosis.

- Radiological signs on CT of less severe form of bronchiectasis include

1. 'Tram-track' sign due to dilated bronchioles with its accompanying vessel

2. 'Signet-ring' sign representing dilated bronchiole closely related to its adjacent vessel

**304. Identify the diagnostic technique shown in Photograph**



a) ERCP

b) MRCP

c) Colonoscopy

d) Sigmoid colonoscopy

Correct Answer - A

**ERCP** is a procedure that enables your physician to examine the pancreatic and bile ducts. A bendable, lighted tube (endoscope) about the thickness of your index finger is placed through your mouth and into your stomach and first part of the small intestine (duodenum).

### 305. Mature defence mechanism is ?

a) Sublimation

b) Denial

c) Projection

d) Distortion

Correct Answer - A

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

#### **Defence mechanism**

- Narcissistic (Psychotic) :- Denial, disortion, projection.
- Immature :- Blocking, introjection, passive-aggressive behavior, acting out, hypochondriasis, regression, schizoid fantasy, somatization.
- Neurotic :- Controlling, Displacement, inhibition, externalization, intellectualization, isolation, rationalization, dissociation, reaction formation, repression, sexualization, conversion, undoing, inhibition.
- Mature :- Asceticism, suppression, altruism, sublimation, humor, anticipation.

**306. Most common symptom of depression in India is:**  
***March 2011***

a) Low mood

b) Sleep disturbances

c) Vague body aches

d) Suicidal tendencies

Correct Answer - C

Ans. C: Vague body aches

Multiple physical symptoms (such as heaviness of head, vague body aches) are particularly common in the elderly depressives and depressed patients from the developing countries (such as India)

**Depression:**

- MC psychiatric disorder in India: Depression
- Neurotransmitter involved: Serotonin and nor-epinephrine
- MC cause of suicide: Depression
- Risk features of suicide in depression:
  - Endogenous type of depression
  - Psychotic depression
- MC type of post-purpueral psychosis: Depression
- Nihilistic ideas: Seen in depression

**307. Not true about somnambulism among the following is?**

a) Sleep walking.

b) Patient consciousness is preserved.

c) Disorder of sleep arousal.

d) Low level motor skill/function is present

Correct Answer - D

Ans:D. Low level motor skill/function is present.

### 308. True about narcolepsy:

a) Sleep sudden

b) Presents in 11nd decade

c) Cataplexy

d) All

Correct Answer - D

A i.e. Sleep sudden; C i.e. Cataplexy; B i.e. Presents in 11nd decade  
Narcolepsy

- It is a disorder *most commonly present with uncontrollable sleep attacks* in which patient abruptly falls asleep in inappropriate (eg while eating), embarrassing (eg during intercourse), and even dangerous (eg while driving) situations.
- Although sleep attacks have been described as *brief (eg. lasting 15-20 minutes)* and *refreshing*, this is not always true.
- The key features are?  
*Cataplexy* (sudden, brief episodes of paralysis with loss of muscle tone) which occurs in most cases. *Sleep paralysis* (brief paralysis associated with onset of sleep or wakefulness)  
*Hypnagogic hallucinations* (dream like experience while falling asleep but not yet asleep).
- It usually begins in *second decade (10-20 years)* i.e. adolescence & occurs equally in males and females.
- The strong genetic association with *HLA DR2*, specifically *HLA DQB1 \* 602* (>85%) suggests an *autoimmune mechanism*.
- In narcolepsy (esp. with cataplexy), Hypocretins (Orexins), the hypothalamic neuropeptide transmitter, regulating sleep-wake cycle, is decreased in brain and CSF along with the decrease in number of hypocretin-positive cells in hypothalamus.

- It results from *defective REM sleep regulation*. Sleep attacks & hypnagogic hallucinations are d/t REM intrusion, whereas cataplexy and sleep paralysis is atonia without REM.
- Diagnosis is confirmed by a sleep onset REM period (on all night PSG) or a positive MSLT in the sleep laboratory.
- Treatment includes:
- *Stimulant drug eg. dexamfetamine* to decrease sleepiness & frequency of sleep attacks.
  - *Modafinil*, a non amphetamine stimulant to decrease day time sleepiness with less side effects.
  - *Clomipramine & other antidepressants* to decrease cataplexy.

**309. A 13 years old boy often argue with parent and teachers. However he is not physical aggressive and there is no history of drug abuse, theft, lying or bullying. Most likely diagnosis is-**

a) Conduct disorder

b) Oppositional defiant disorder

c) Autism

d) Pervasive developmental disorder

Correct Answer - B

**Ans: B. Oppositional defiant disorder**

(Ref: Kaplan & saddock's th/e p. 11391)

- This boy is showing a pattern of defiance of authority (arguing with parents and teachers).
- There are no features of conduct disorder (drug abuse, theft' lying).
- Thus, the diagnosis is oppositional defiant disorder.

**310. A 13 years old boys is often aggressive, arguing with parent and teachers. He has history of frequent lying and stealing money at home. He always runs away from class to play. The diagnosis is-**

a) Conduct disorder

b) Oppositional defiant disorder

c) Autism

d) Pervasive developmental disorder

Correct Answer - A

**Ans: A. Conduct disorder**

(Ref: Kaplan & Saddock's th/e p. 1139).

- Conduct disorder is characterized by a persistent and significant pattern of conduct in which the basic rights of others are violated or rules of society are not followed.
- The onset occurs much before 18 years of age, usually even before puberty.

**The characteristic clinical features include: -**

1. Frequent lying
2. Stealing or robbery
3. Physical violence like rape, fire setting, assault, use of weapons, fighting and aggressiveness.
4. Running away from home and school → Therefore, backward in studies.

**311. A 40-year old male is admitted with complaints of abdominal pain and headache. General physical examination revealed six scars on the abdomen from previous surgeries. He seems to maintain a sick role and seeks attention from the nurses. He demands multiple diagnostic tests including a liver biopsy. The treating team failed to diagnose any major physical illness in the patient. His mental status examination did not reveal any major psychopathology. One of the treating staff recognized him to have appeared in several other hospital with abdominal pain and some other vague complaints. He is most likely suffering from:**

a) Schizophrenia

b) Malingering

c) Somatisation disorder

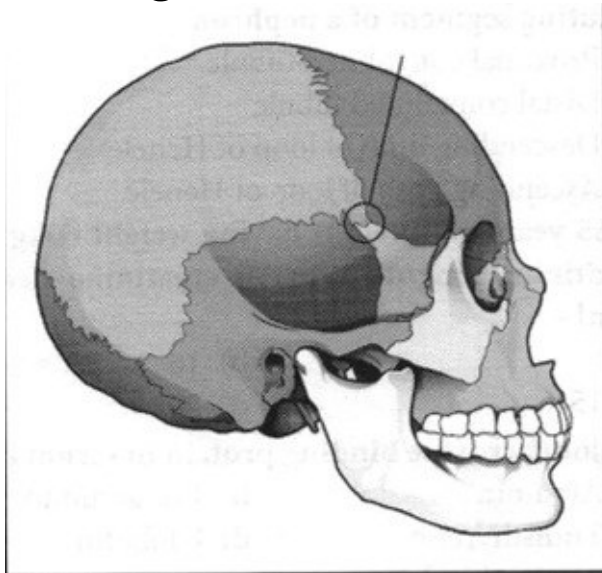
d) Factitious disorder

Correct Answer - D

D i.e. Factitious disorder

D.T.E. Facilitious disorder

**312. The injury to the marked area of skull will cause Intracranial hemorrhage due to damage to which vessel**



a) Middle cerebral artery

b) Middle meningeal artery

c) Anterior cerebral artery

d) Deep temporal artery

Correct Answer - B

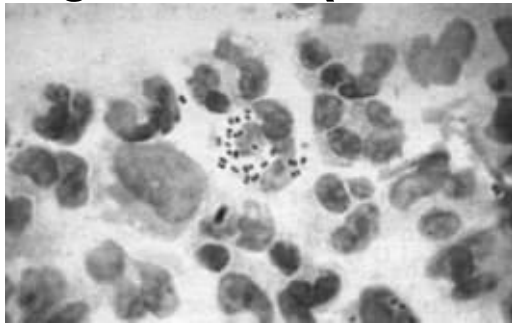
**Ans: B Middle meningeal artery**

(Ref: Clinical anatomy 2d/e p. 306)

- The pterion is situated in the floor of temporal fossa.
- An H-shaped suture, where four bones meet each other :-
  - .. Greater wing of sphenoid
  - ?. Squamous temporal
  - }. Frontal

- i. Anteroinferior angle of parietal
- Fracture at this point may injure middle meningeal artery or/and vein and give rise to extradural hemorrhage.

**313. A 33 years old sexually active male is having urethral discharge since last 8 months along with burning sensation while micturation. Gram staining smear of urethral swab sample is showing following picture. The causative organism is (Also see colored images)-**



a) Chlamydia trachomatis

b) Neisseria gonorrhoeae

c) Mycoplasma hominis

d) Vreoplasma urealyticon

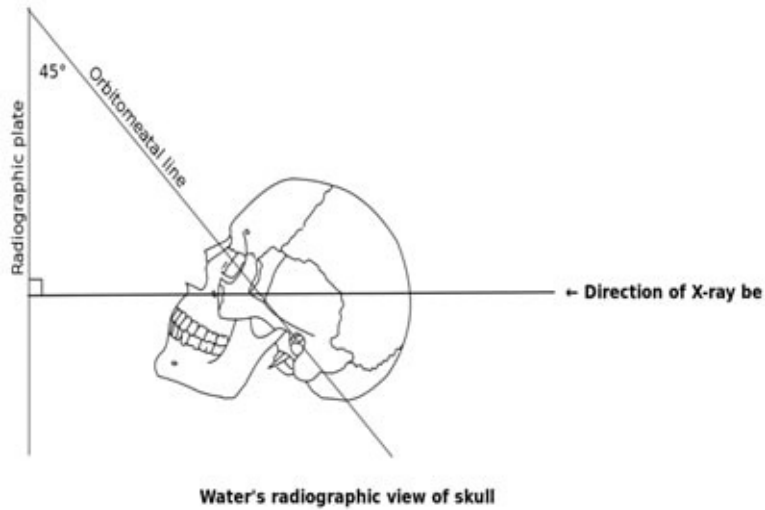
Correct Answer - B

**Ans. is 'b' i.e., Neisseria gonorrhoeae**

[Ref Ananthanarayan *S<sup>th</sup> le p. 50*]

- In the given smear, gram-negative (red colored) diplococci within the polymorphonuclear leucocytes - characteristic of N gonorrhoeae.

### 314. What is structure 'A' in the given X-ray



a) Ethmoid air cells

b) Sphenoid sinus

c) Mastoid air cells

d) Groove for pituitary

Correct Answer - B

**Ans. B. Sphenoid sinus**

**In the given figure-**

- A - Sphenoid sinus
- B - frontal sinus
- C - Ethmoid air cells
- D - Maxillary sinus
- E - Mastoid air cells

**315. Patient complains of diminished vision with known history of hypertension, diabetes mellitus and primary open angle glaucoma. The fundus examination is showing following figure. The most likely diagnosis is  
(Also see colour pages)-**



a) Macular hole

b) CRVO

c) Macular degeneration

d) Retinal detachment

Correct Answer - B

Answer- B. CRVO

**The given figure of fundus is showing:**

- Tortuous & engorged veins with hemorrhages all over retina
- Typical splash tomato fundus.
- CRVO is more common than the artery occlusion. Occlusion of CRV

is less abrupt in presentation than occlusion of CRA.

- In central retinal vein occlusion (CRVO), glaucoma manifests about 100 days after thrombosis of central vein, therefore, it is also called 100 days glaucoma.

**316. The given X-ray of Hands is most likely of the patient of  
(Also see colour pages)-**



a) Osteoarthritis

b) Rheumatoid arthritis

c) Ankylosing spondylitis

d) Hemophilic arthritis

Correct Answer - B

Answer-B. Rheumatoid arthritis

**In the given X-ray**

1. There is periarticular osteopenia (see all metacarpo-phalangeal joint have radiolucent area around them)
2. Some of the joint spaces (especially IP joints) are completely obliterated
3. There is no new bone formation or subchondral sclerosis
4. Some of IP joints have erosion of articular margins

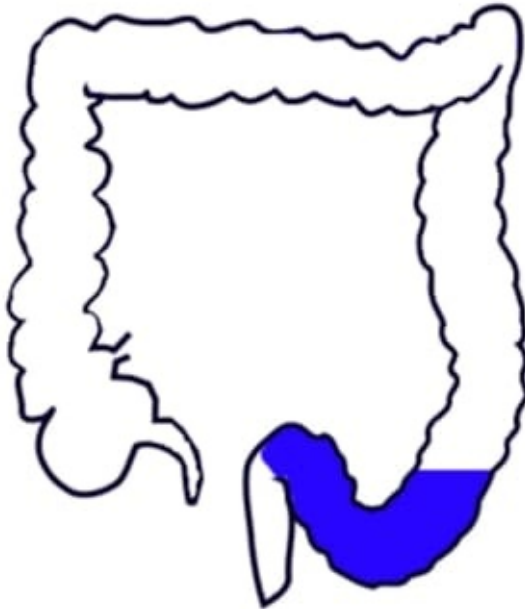
- These are typical radiological findings of RA

**Following features are seen on X-ray:-**

- Reduced joint space

- Erosion of articular margins
- Subchondral cysts
- Juxta-articular rarefaction
- Soft tissue shadow at the level of the joint because of joint effusion or synovial hypertrophy
- Deformities of the hand and fingers
- Periarticular osteopenia (osteoporosis) → Earliest finding

**317. A 40 years old male presents with altered bowel habit and mild abdominal pain. Fluoroscopy image is shown below. What is the diagnosis (Also see colour pages) -**



a) Ileocecal TB

b) Crohn's disease

c) Sigmoid diverticulitis

d) Ulcerative colitis

Correct Answer - C

**Answer- C. Sigmoid diverticulitis**

- The given image is showing multiple diverticula (yellow arrow head) in sigmoid colon. Patients with diverticulitis usually complain of left

lower quadrant abdominal, pain which may radiate to the suprapubic area, left groin, or back.

- Diverticulitis obviously presents in a variety of ways with a broad spectrum of severity, from a single episode of mild self-limited disease, to repeated episodes that respond to antibiotics, to fulminant complicated disease characterized by life-threatening sepsis.

invalid question id