

1. Rhomboids major is inserted on ?

a) Medial border of scapula

b) Lateral border of scapula

c) Inferior angle of scapula

d) Intertubercular groove of humerus

Correct Answer - A

Ans. is 'a' i.e., Medial border of scapula

(Ref: Garg 4Uh/e p. 803, 810-812))

Origin:

- Spinous processes of T2 to T5 vertebrae

Insertion

- Medial border of the scapula, inferior to the insertion of rhomboid minor muscle.

2. Insertion of levator scapulae is ?

a) Lateral border of scapula

b) Suprolateral part of scapula

c) Superior part of medial scapula border

d) Inferior angle of scapula

Correct Answer - C

Ans. is 'c' i.e., Superior part of medial scapula border

[Ref Rockwood, Charles A.; Matsen, (2009). The shoulder, Vol. 1]

Origin:

- Posterior tubercles of transverse processes of C 1 - C4 vertebrae.

Insertion:

- Superior part of medial border of scapula

3.

Coracohumeral ligament is the degenerated part of ?

a) Biceps brachii

b) Coracobrachialis

c) Pectoralis minor

d) Latissimus dorsi

Correct Answer - C

Ans. is'c'i.e., Pectoralis minor

- (Ref: Clinical anatomy p. 101)
- Coracohumeral ligament extends from lateral margin of root of coracoid process to greater tuberosity of humerus.
- Morphologically degenerated part of the pectoralis minor.

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

a) Pectoralis major

b) Latissimus dorsi

c) Subclavius

d) Serratus anterior

Correct Answer - C

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

(Ref: Clinical anatomy j'd/e p. 1367)

- Subclavius steadies the clavicle during movements of shoulder.

5. Lymphatics from the upper limb drain into which group of axillary nodes?

a) Anterior group

b) Lateral group

c) Central group

d) Posterior group

Correct Answer - B

Ans. is 'b' i.e., Lateral group

[Ref: BDC 4h/e Vol. I p. 57-58]

Lateral group:

- Lie along the upper part of the humerus, medial to the axillary vein.
- Receive lymph from upper limb.

6. What is attached to the superior nuchal line?

a) Trapezius

b) Scalenus anticus

c) Coracobrachialis

d) Biceps Brachii

Correct Answer - A

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

[Ref: Snell's th/e p. 3a2]

Muscles attached to superior nuchal line

- Occipitalis muscle,
- The splenius capitis muscle
- Trapezius muscle,
- Sternocleidomastoid muscle

7. Extensor carpi Radialis longus is crossed by which of the following two muscles ?

a) Abductor Pollicis Longus and Extensor Pollicis brevis

b) Extensor digitorum and extensor indicis

c) Abductor Pollicis Longus and Extensor Indicis

d) Brachioradialis and Extensor digiti minimi

Correct Answer - A

8. Median nerve supplies which branch to the brachial arter -

a) Sensory branch

b) Sympathetic branch

c) Motor branch

d) None

Correct Answer - B

Ans. is'b'i.e., Sympathetic branch

Ref: Gray's Anatomy 39,/el

- 'Median nerve supplies vascular branches to the brachial artery in the arm.
- These fibres are sympathetic fibres.
- Median nerve has no sensory or cutaneous branch in the arm.
- Only branches it gives off in the arm are sympathetic branches to the brachial artery.

9. Which of the following structure passes through the triangular interval of the arm?

a) Radial nerve

b) Axillary nerve

c) Median nerve

d) Ulnar Nerve

Correct Answer - A

Ans. is 'a' i.e., Radial nerve

(Ref:' Gray's anatomy for students. Elsevier/Churchill Livingstone p. 650]

Lower triangular space of arm - Contents:

Boundaries:

- Superior: Teres major
- Medial: Long head of tricep
- Lateral: Shaft of humerus

Contents:

- Radial nerve
- Profunda brachii vessels.

10. Distal muscles of the hand needed for fine work are controlled by -

a) Radial nerve

b) Median nerve

c) Ulnar nerve

d) Axillary nerve

Correct Answer - C

Ans. is'c'i.e., Ulnar nerve

(Ref: Snell's th/e p. 354)

- Ulnar nerve is also known as musicians nerve as it is needed to carry out fine and precision movements of the hand.

11. Nerve supply of latissimus dorsi -

a) Radial nerve

b) Long thoracic nerve

c) Thoracodorsal nerve

d) Axillary nerve

Correct Answer - C

Ans. is'i.e., Thoracodorsal nerve

(Ref. Gray's 3^{*/e} p. S46)

- Thoracodorasal nerve (C6-8) is a branch of posterior cord of brachial plexus that supplies the latissimus dorsi muscle.
- Also known as the nerve to latissimus dorsi.

12.

In case of Blockade of 2nd part of axillary artery blood supply to upper limb is maintained by which anastomosis -

a) Dorsal scapular anastomosis

b) Ventral scapular anastomosis

c) Circle of Willis

d) Anastomosis around internal thoracic artery

Correct Answer - A

Ans. is'a'i.e., Dorsal scapular anastomosis

(Ref: Clinical anatomy 3d/e p. 756)

Dorsal Scapular Anastomosis:

- This anastomosis occurs connects the 1st part of subclavian artery to the third part of axillary artery providing an alternate route of flow of blood in case of occlusion anywhere within the subclavian and axillary artery.

13. Dermatome supplying the middle finger is

-

a) C6

b) C7

c) C8

d) T1

Correct Answer - B

Ans. is 'b' i.e., C7

(Ref: BDC Sth/e Vol. 1 p. 68).

- Thumb - C6
- Ring middle & index finger - C7
- Little finger - C8.

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

a) Median nerve and Radial nerve

b) Radial nerve and ulnar nerve

c) Ulnar nerve and Median nerve

d) Musculocutaneous nerve and Radial nerve

Correct Answer - C

Ans. is 'c' i.e., Ulnar nerve and Median nerve

(Rel BDC 5^h/e VoL I p. 108-111)

On Palm side:

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

15. Structures piercing clavipectoral fascia are all except:

a) Cephalic vein

b) Thoracoacromial artery

c) Lateral pectoral nerve

d) Basilic vein

Correct Answer - D

The clavipectoral fascia is a strong sheet of connective tissue that is attached above to the clavicle.

Below, it splits to enclose the pectoralis minor muscle and then continues downward as the suspensory ligament of the axilla and joins the fascial floor of the armpit.

The coracoclavicular fascia is pierced by the cephalic vein, thoracoacromial artery and vein, lymphatics passing from the breast and pectoral region to the apical group of axillary lymph nodes and lateral pectoral nerve.

16. Which foot bone does not have any muscle attachment?

a) Talus

b) Calcaneum

c) Navicular

d) 1st metatarsal

Correct Answer - A

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

[Ref BDC 6th/e Vol. II p. 30]

- Talus is the only bone in the foot having no muscle attachment. Only ligamentous attachment.

17. Radial tuberosity provides attachment to -

a) Brachialis

b) Biceps brachii

c) Triceps

d) Coracobrachialis

Correct Answer - B

Ans. is 'b' i.e., Biceps brachii (Ref: Elsevier's integrated anatomy Vol 2 p 30).

- An anterior, rough portion of tubercle - For insertion of tendon of biceps brachii.
- A posterior smooth portions of tubercle - Bursa interposed between tendon & bone..

18. Which of the following muscle cause hip extension and knee flexion ?

a) Semitendinosus

b) Gastrosoleus

c) Psoas major

d) Tensor Fascia lata

Correct Answer - A

Ans. is'a' i.e.. Semitendinosus

- Semitendinosus is hamstring muscle.
- Causes flexion at knee & extension at hip.

19. All of the following are true about the root of right lung except?

a) Azygous vein crosses anteriorly and superiorly

b) Vagus crosses it anteriorly

c) Phrenic nerve crosses it anteriorly

d) SVC is present anteriorly

Correct Answer - B

Ans 'b'i.e., Vagus crosses it anteriorly

(Ref: Snell's 7th/e p. 94; BDC 4'h/e Vol.I p. 224)

- Vagus nerve crosses both hila posteriorly.
- Azygous vein arches the hilum of right lung (azygous vein is superior to hilum)
- Phrenic nerve (on both sides) and SVC (on right side) are anterior.

20. Typical intercostal space has -

a) One artery

b) Two arteries

c) Three arteries

d) Four arteries

Correct Answer - C

Ans.is 'c' i.e., Three arteries

(Ref: BDC 6h/e Vol. I p. 219)

- Each of upper nine intercostal spaces have one posterior and two anterior intercostal arteries.

21. Supraventricular crest lies between -

a) Pulmonary orifice and atrioventricular orifice

b) Atrioventricular orifice and fossa ovalis

c) SVC and right atrium

d) Right and left coronary artery

Correct Answer - A

Ans. is 'a' i.e., Pulmonary orifice and atrioventricular orifice

(Ref: BDC 8/e Vol, I p. 253-258).

- Supraventricular crest (crista supraventricularis) or infundibulo-ventricular crest separates tricuspid (AV) orifice and pulmonary orifice, i.e. inlet and outlet parts.

22. Nerve supply of cervical esophagus ?

a) Vagus

b) Left recurrent laryngeal nerve

c) Right recurrent laryngeal nerve

d) All of the above

Correct Answer - D

Ans. is d', All of the above

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

Nerve supply of esophagus:

- Esophagus is supplied by both parasympathetic and sympathetic fibers.
- A) Parasympathetic supply**
- It provides sensory, motor and secretomotor supply to esophagus.
- Complete parasympathetic innervation is provided by vagus nerve:-**
1. Cervical esophagus: Through both (right & left) recurrent laryngeal nerve.
 2. Upper thoracic esophagus: Through left recurrent laryngeal nerve and by direct branches from vagus nerve.
 3. Lower thoracic esophagus: Through esophageal plexus.
- B) Sympathetic supply**
- It provides sensory and vasomotor supply.
 - It is provided by T₅ to T₁₁ spinal segments.

23. True about relations of thoracic esophagus ?

a) Trachea posteriorly

b) Aortic arch on right side

c) Left bronchus anteriorly

d) Thoracic duct on right side

Correct Answer - C

Ans. is'c'i.e., left bronchus anteriorly

(Ref: Snell's p. 128)

The relations of the thoracic part of the esophagus from above downward are as follows:

- Anteriorly: The trachea and the left recurrent laryngeal nerve: the left principal bronchus which constricts it; and the pericardium, which separates the esophagus from the left atrium.
- Posteriorly : The bodies of the thoracic vertebrae, the thoracic duct, the azygos veins, the right posterior intercostal arteries and at its lower end the descending thoracic aorta.
- Right side: The mediastinal pleura and the terminal part of the azygos vein.
- Left side: The left subclavian artery, the aortic arch, the thoracic duct the mediastinal pleura.

24. Which vein is found at the apex of the heart ?

a) Great cardiac vein

b) Coronary Sinus

c) Anterior cardiac vein

d) Middle cardiac vein

Correct Answer - A

Ans. is'a'i.e., Great cardiac vein

[Rel BDC 4n/e Vol. I p. 251-252; Keith Moore 4e/e p. 136-137;
Snell's 9/e p. 1211

Great Cardiac Vein:

- The great cardiac vein (left coronary vein) begins at the apex of heart and ascends along the anterior longitudinal sulcus to the base of ventricle.

25. Xiphisternum is present at what level ?

a) T5

b) T6

c) T9

d) T10

Correct Answer - C

Ans. is'c'i.e., T9

(Ref. Keithl. Moore Clinically Oriented Anatomy Ple p. 84)

- Level of xiphisternum - T9

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

a) I

b) II

c) IV

d) VII

Correct Answer - D

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

[Rel Gray's 4th/e p. 1163-1167; Sabatton 18th/e p. 15841

Segmental anatomy of the liver:

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

27. Which of the following is true about upper 1/3' of the rectum?

a) It is covered by peritoneum only anteriorly

b) It is covered by peritoneum on the front, sides and back

c) It has no peritoneal attachments

d) It is covered by peritoneum on the sides and anteriorly

Correct Answer - D

Ans. is'd' i.e., It is covered by peritoneum on the sides and anteriorly

(Ref: Basic Human Anatomy, O'Rahilly, Muller Chapter 36)

- Upper 1/3'd of rectum Covered by peritoneum on the front and sides
- Middle 1/3'r of rectum Covered by peritoneum on the sides only
- Lower 1/3"r of rectum Devoid of peritoneal attachments

28. Muscles forming floor of pelvis are all except?

a) Pubococcygeus

b) Iliococcygeus

c) Ischiococcygeus

d) Iliacus

Correct Answer - D

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

(Ref: BDC &/eVol.IIp. 425)

- The pelvic floor is formed by the levator ani muscle which consists of three parts:-
 1. Pubococcygeus
 2. Iliococcygeus
 3. Ischiococcygeus

29. Perineal body muscles include all of the following except?

a) External anal sphincter

b) Levator ani

c) Deep transverse perenei

d) Iliacus

Correct Answer - D

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

[Ref: BDC &/e Vol. II p. 425]

- Ten muscles of perineum converge and interlace in the perineal body -
 - A) Two unpaired - (i) External anal sphincter, (ii) Fibres of longitudinal muscle coat of anal canal.
 - B) Four paired:- (i) Bulbospongiosus, (ii) Superficial transverse perenei, (iii) Deep transversus perenei, (iv) Levator ani.
- In females, sphincter urethrovaginalis is also attached here.

30. Lower 1/3^d of anal canal is derived from?

a) Proctodaeum

b) Cloaca

c) Urogenital Sinus

d) Midgut

Correct Answer - A

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

(Ref: BDC Sh/eVol. II p. 415)

- 'The lower third of the anal canal is an ectodermal derivative and is derived from the proctodaeum.'
- Part of anal canal above pectinate line develops from dorsal part of md.odermal cloaca (primitive rectum) and part of anal canal below pectinate line develops from ectodermal proctodeum.

31. Anorectal malformations include all of the following except?

a) Coloanal fistula

b) Rectourethral fistula

c) Imperforate anus

d) Anal Stenosis

Correct Answer - A

Ans. is'a'i.e., Coloanal fistula

- Anorectal malformations are conditions occurring due to congenital anomalies of the rectum and anus
- They include :**
- Anal stenosis
- Persistent Cloaca
- Imperforate anus
- Rectourethral or rectovesical fistula
- Rectovaginal fistula

32. Which of the following about the valves of Houston is true?

a) They disappear after mobilization of the rectum

b) The middle valve folds towards the right side

c) The upper valve corresponds to the anterior peritoneal reflection

d) The valves contain all layers of the muscle wall

Correct Answer - A

A i.e. They disappear after mobilization of rectum

33. Hesselback triangle- False is?

a) Indirect inguinal hernia occurs through it

b) It is laterally bounded by inferior epigastric artery

c) it is also known as inguinal triangle

d) Inferior boundary is inguinal ligament

Correct Answer - A

Ans. is 'a' i.e., Indirect inguinal hernia occurs through it

[Ref: BDC 4n/e Vol.2 p. 50, 210]

Inguinal triangle of hesselbach:

- It is a peritoneal triangle in the posterior wall of the inguinal canal,
Boundaries
 1. Lateral- inferior epigastric artery
 2. Medial-lateral border of rectus abdominis
 3. Inferior- inguinal ligament
- Direct inguinal hernia enters the inguinal canal through this triangle, which is divided by the obliterated umbilical artery into a medial part (supravesical fossa) and a lateral part (medial inguinal fossa).

34. At the superficial inguinal canal increased abdominal pressure leads to closure by approximation of crura in the opening. This defect is seen in an aponeurosis formed by which of the following muscles?

a) Fascia transversalis

b) External oblique

c) Internal oblique

d) Erector spinae

Correct Answer - B

Ans. is'b'i.e., External oblique

(Ref: BDC &/e Vol. II p. 212, 213; Ramesh Babu p. 219)

- Examiner is asking about superficial inguinal ring which is triangular defect in external oblique aponeurosis.
- Superficial inguinal ring is an anatomical structure in the anterior abdominal wall. It is a triangular shaped defect in the aponeurosis of external oblique muscle

35. Normal splanchnic blood supply of the liver includes?

a) Portal vein

b) Splenic artery

c) Superior mesenteric artery

d) Inferior mesenteric vein

Correct Answer - A

Ans. is'a'i.e., Portal vein

(Ref, Gray's 4F/e p. 1163-1167)

- Liver has dual blood supply and receives 20% of its blood supply via hepatic artery (systemic) and 80% through portal vein (splanchnic).
- Portal vein is formed by union of splenic vein and superior mesenteric veins.

36. Which of the following is present at the superior border of the pancreas ?

a) Splenic artery

b) Portal vein

c) Left Kidney

d) IVC

Correct Answer - A

Ans. is'a'i.e., Splenic artery

(Ref: BDC &/e Vol.II p. 300)

The body of pancreas has 3 borders-

- Anterior border provides attachment to the root of transverse mesocolon.
- Superior border is related to coeliac trunk, hepatic artery and splenic artery.
- Inferior border is related to superior mesenteric vessels.

37. Contraction of Detrusor muscle is mediated by?

a) S2,S3,S4

b) Vagus

c) Lumbar sympathetic supply

d) Pudendal nerve

Correct Answer - A

Ans. is'a'i.e., S2,S3,S4

[Ref: BDC dh/e Vol. II p. 375; Clinical anatomy p. 9127

- Bladder is supplied by both sympathetic and parasympathetic fibers.
- **A) Parasympathetic:**
- Preganglionic fibers arise from S2 to S4 cord segments, pass via pelvic splanchnic nerves.
- After relay in ganglion cells in pelvic plexus (inferior hypogastric plexus) and in bladder wall, postganglionic fibers supply detrusor muscle.
- Contraction of detrusor muscle is mediated by cholinergic muscarinic receptors (M3).
- Preganglionic parasympathetic neurons at S2, S3, and S4 cord segments innervating bladder form sacral micturition center.

38. Cortex to medulla ratio in adults of the kidney is?

a) 35-45%

b) 50-60%

c) 60-70%

d) 15-20%

Correct Answer - A

Ans. is 'a' i.e., 35-45%

- As the age progresses the amount of cortex in the kidney decreases more compared to the medulla and hence the ratio decreases.
- In children the cortico medullary ratio is high, almost to the extent of 1:1 (around 50%).
- In healthy adults it is 35-45%.

39. Which of the following is true about anatomy of the cerebellum?

a) Globose cells are present in the roof

b) Vermis is present in the midline

c) Flocculonodular lobe is concerned with smoothing and coordination of movements

d) Dentate nucleus is the medial most nucleus

Correct Answer - B

Ans. is 'b' i.e., Vermis is present in the midline.

(Ref: Ganong 23d/e p. 255)

- 'The vermis is a midline structure that connects the two cerebellar hemispheres.'
- 'Dentate nucleus is the lateral most nucleus.'
- 'Spinocerebellum and not flocculonodular lobe is concerned with smoothing and coordination of movements'
- 'Globose cells are a part of deep cerebellar nuclei and are present deep inside the substance of cerebellum.'

40. Posterior longitudinal ligament continues as?

a) Apical ligament

b) Alar ligament

c) Membrana tectoria

d) Transverse ligament

Correct Answer - C

Ans. is'c'i.e., Membrana tectoria

[Ref: Nigel Palastanga; Roger W. Soames (2012). Churchill Livingstone, ed. Anatomy and Human Movement: Structure and Function.]

- The Posterior longitudinal ligament is situated within the vertebral canal, and extends along the posterior surface of the bodies of the vertebrae.
- It starts from the body of the axis, where it is continuous with the membrana tectoria and continues to the sacrum.

41. Artery of Adamkiewicz is related to?

a) Hand

b) Penis

c) Brain

d) Spinal Cord

Correct Answer - D

Ans. is'd'i.e., Spinal Cord

[Ref. Moore, Keith; Anne Agur (2007). Essential Clinical Anatomy, Third Edition. Lippincott Williams (t Wilkins. p. 29B)

- The artery of Adamkiewicz, also known as the great anterior radiculomedullary artery or arteria radicularis anterior magna, is the name given to the dominant thoraco-lumbar segmental artery that supplies the spinal cord.

42. Purkinje cells of cerebellum are connected to ?

a) Basket cells

b) Stellate cells

c) Deep cerebellar nuclei

d) All of the above

Correct Answer - D

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

- The two main inputs to the cerebellar cortex are climbing fibers and mossy fibers, which are excitatory.
- The climbing fibers come from a single source, the inferior olivary nuclei and directly projects to the primary dendrites of a purkinje cell.

43. True about vagal nuclei are all except?

a) There are 4 vagal nuclei

b) They are found in the floor of 4th ventricle

c) Nucleus Ambiguus is a vagal nucleus

d) Spinal trigeminal nucleus is not a vagal nucleus

Correct Answer - D

Ans. is'd'i.e., Spinal trigeminal nucleus is not a vagal nucleus

(Ref: 'Functional and chemical anatomy of the afferent vagal system'. Autonomic Neuroscience. 85 (I-3): I-17.)

- The vagus nerve includes axons which emerge from or converge onto four nuclei of the medulla.
- They are present deep in the medulla in the floor of the 4th ventricle.

44. Association fibers include all of the following except?

a) Corona Radiata

b) Arcuate fasciculus

c) Cingulum

d) Uncinate fasciculus

Correct Answer - A

Ans. is'a'i.e., Corona Radiata

(Ref Gray's Anatomy p. 411)

White matter of cerebrum hemisphere is divisible into 3 fiber systems :-

Association fibers:

- Connect the one functional area of one cerebral hemisphere to other in the same cerebral hemisphere.
- .. Cingulum
- 2.. Superior longitudinal fasciculus
- 3.. Inferior longitudinal fasciculus
- 4.. Uncinate fasciculus
- 5.. Arcuate fasciculus
- 6.. Fornix
- 7.. Occipitofrontal fasciculus

45. Stellate ganglion is seen in?

a) Cerebellum

b) Mid brain

c) Medulla oblongata

d) Near lower cervical spine

Correct Answer - D

Ans. is 'd' i.e., Near lower cervical spine

[Ry' Gray's 38h/e p. 13031

- The stellate ganglion (or cervicothoracic ganglion) is a sympathetic ganglion formed by the fusion of the inferior cervical ganglion and the first thoracic ganglion.
- Stellate ganglion is located at the level of C7, anterior to the transverse process of C7 and the neck of the first rib, superior to the cervical pleura and just below the subclavian artery.

46. Nerve supply of circumvallate papillae is:

a) Hypoglossal nerve

b) Glossopharyngeal nerve

c) Lingual nerve

d) Chorda tympani

Correct Answer - B

Circumvallate papilla is one of the large papillae near the base on the dorsal aspect of the tongue arranged in a V-shape. The taste buds are located in the epithelium of the trench surrounding the papilla. Motor nerve supply of tongue: All the intrinsic and extrinsic muscles of the tongue are supplied by the hypoglossal nerve except the palatoglossus muscle which is supplied by the cranial part of the accessory nerve through the pharyngeal plexus.

Glossopharyngeal nerve is both general sensory and special sensory to the posterior 1/3rd of the tongue. Posterior most part of the tongue is supplied by the internal laryngeal nerve which is a branch of vagus nerve.

47. Superior cerebellar peduncle contains mainly which tract ?

a) Tectocerebellar

b) Olivocerebellar

c) Vestibulo cerebellar

d) Reticulo cerebellar

Correct Answer - A

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

Superior cerebellar peduncle

- This is the major output of the brain and connects to the midbrain, via the cerebellothalamic tract (to the thalamus), and the cerebellorubral tract (to the red nucleus). It receives afferents from the locus coeruleus, and ventral spinocerebellar tract.

Middle cerebellar peduncle

- This is the largest peduncle and connects the cerebellum to the pons. It connects the contralateral pontine nucleus to the cerebellar cortex and also carries the input from the contralateral cerebral cortex. It is composed of three fasciculi including the superior, inferior and deep.

Inferior cerebellar peduncle

- This connects the spinal cord and medulla to the cerebellum. The posterior spinocerebellar tract receives proprioceptive information from the body. The cuneocerebellar tract receives proprioceptive input from the upper limb and neck. The trigeminocerebellar tract sends proprioceptive input from the face. The juxtarestiform is an efferent system here.

48. Proprioception is carried by which fibers?

a) Fasciculus cuneatus and fasciculus gracilis

b) Anterior spinothalamic tract

c) Lateral spinothalamic tract

d) Spinocerebellar tract

Correct Answer - A

Ans. is'a'i.e., Fasciculus cuneatus and fasciculus gracilis

(Ref: Guyton 12th/e p. 573)

- Posterior column (Dorsal column) (Fasciculus Gracilis and Fasciculus Cuneatus) carries
- Proprioception (Position of body or limb, position of joint)
- Vibration
- Fine touch (two point discrimination, topognosis, stereognosis).
- Kinesthesia

49. Proprioception is lost when?

a) Posterior part of spinal cord is injured

b) Lateral part of spinal cord is injured

c) Anterior part of spinal cord is injured

d) None

Correct Answer - A

Ans. is'a'i.e., Posterior part of spinal cord is injured

[Ref: Guyton 12'h/e p. 573]

- Posterior part of spinal cord consists of fasciculus gracilis and fasciculus cuneatus which carry the sensations of and vibration to the brain.
- They also carry fine touch and kinesthesia.

50. Visual center is present in?

a) Parietal lobe

b) Occipital lobe

c) Frontal lobe

d) Temporal Lobe

Correct Answer - B

Ans. is 'b' i.e., Occipital lobe

(Ref: BDC 6h/e Vol. III p. 421-425)

- Occipital lobe has the following areas related to vision

Primary visual cortex (strike area, area 17):

- It is present in medial surface of occipital lobe on upper lip and lower lip of calcarine sulcus.

51. A patient presents with a chief complaint of chronic nose bleeds. To control the severity of these nosebleeds, his physician decides to ligate the sphenopalatine artery. From which of the following arteries does the sphenopalatine artery arise from?

a) External carotid

b) Facial

c) Maxillary

d) Ophthalmic

Correct Answer - C

The *sphenopalatine artery* is the terminal branch of the maxillary artery. The maxillary artery arises from the external carotid artery and then passes through the infratemporal fossa, giving off branches to structures in this region.

52. All of the following muscles forms the boundary of the suboccipital triangle found in the suboccipital region of the neck, EXCEPT?

a) Obliquus capitis superior muscle

b) Obliquus capitis inferior muscle

c) Rectus capitis posterior major muscle

d) Rectus capitis posterior minor muscle

Correct Answer - D

The suboccipital triangle is bounded by rectus capitis posterior major and the obliquus capitis superior and inferior muscles. The floor of this triangle is formed by the posterior occipitoatlantal membrane and the posterior arch of the C1 vertebrae.

Contents of the triangle are:

- Vertebral artery
- Suboccipital nerve
- Greater occipital nerve

53. Infundibulum develops from ?

a) Floor of lateral ventricle

b) Floor of 4th ventricle

c) Floor of third ventricle

d) Rhombencephalon

Correct Answer - C

Ans. is 'c' i.e., Floor of third ventricle

(Ref: Textbook of Neuroanatomy p. 112)

- The infundibulum of the diencephalon is a downward evagination of the floor of the third ventricle.
- As the infundibulum grows down, it meets an ectodermal diverticulum of the oral cavity, known as Rathke's pouch.

54. Protoplasmic astrocytes are located in ?

a) Gray matter

b) White matter

c) Inside blood vessels

d) Inside neurons

Correct Answer - A

Ans. is'a'i.e., Gray matter

[Ref: Clinical neurology 4h/e p. 7111

There are following types of astrocytes :

- Protoplasmic Astrocytes
- They are located in gray matter in close association with neurons.
- They provide nutrients, assist in metabolism and help in formation of blood-brain-barrier.

55. Development of the urinary bladder is from?

a) Urogenital Sinus

b) Paramesonephric Duct

c) Metanephric Blastema

d) Proctodaeum

Correct Answer - A

Ans. is 'a' i.e., Urogenital Sinus

[Ry' Inderbir Singfi Human Embryology Sth/e p. 246]

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

56. Optic vesicle is derived from ?

a) Neuroectoderm

b) Surface ectoderm

c) Endoderm

d) Mesoderum

Correct Answer - A

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

(Ref Indo Khurana ernbryology p. 268)

Formation of optic cup

- An outgrowth from prosencephalon forms optic vesicle (neuroectodermal structure).
- Proximal part of optic vesicle becomes constricted and elongated to form optic stalk.

57. Embryo develops from ?

a) Inner cell mass

b) Trophoblasts

c) Outer cell mass

d) None of the above

Correct Answer - A

Ans. is'a'i.e., Inner cell mass

[Ref Textbook of embryology p. 24)

- As the morula enters the uterine cavity, uterine fluid diffuses through zona pellucida and fills small intercellular gaps between blastomeres, and morula is converted to blastocyst.
Embryoblast :
- A group of centrally located cells of inner cell mass and later give rise to tissues of the embryo proper.

58. Tragus is supplied by?

a) Lesser occipital nerve

b) Auricular branch of vagus

c) Greater auricular nerve

d) Auriculotemporal nerve

Correct Answer - D

Ans. is'd'i.e., Auriculotemporal nerve

- "The auriculotemporal nerve supplies the majority of lateral portion of ear including tragus and crux of helix".

59. Which of the following is true about longus colli?

a) Origin is in the occiput

b) Extensor of the neck

c) Nerve supply is from C2 -C6

d) Inserts on C3-C6

Correct Answer - C

Ans. is 'c'i.e., Nerve supply is from C2 -C6

[Ref: Dalley AF, Agur AM. Clinically Oriented Anatomy, Sixth Edition. Lippincott Williams).

Longus Colli:

- Situated on the anterior surface of vertebral column, between the atlas and the 3rd thoracic vertebra.

60. Greater cornua of the hyoid bone fuses with the body at what age ?

a) 15 years

b) 25 years

c) 10 years

d) 35 years

Correct Answer - B

Ans. is'b'i.e., 25 years

- Time of fusion of greater cornua of hyoid - 25 years with the body
- Time of fusion of lesser cornua = 35-40 years

61. Suboccipital nerve is?

a) C1 ventral ramus

b) C2 ventral ramus

c) C1 dorsal ramus

d) C2 dorsal ramus

Correct Answer - C

Ans: C. C1 dorsal ramus

(Ref: BDC 5th/e Vol. III p. 871).

- The suboccipital nerve is the dorsal primary ramus of the first cervical nerve (C1).
- It exits the spinal cord between the skull and the first cervical vertebra, the atlas.
- It lies within the suboccipital triangle along with the vertebral artery, where the artery enters the foramen magnum

62. Serotonin is secreted by:

a) Thyroid

b) Adrenal cortex

c) Adrenal medulla

d) Argentaffin cells

Correct Answer - D

Serotonin is a vasoconstricting hormone, produced in the brain and GI tract. In the GI tract it is produced normally by enterochromaffin cells (argentaffin cells). The principal function is to regulate smooth muscle contraction and peristalsis.

Serotonin: also called 5-hydroxytryptamine, is a chemical substance that is derived from the amino acid tryptophan.

Principally found stored in three main cell types;

- (a) Serotonergic neurons in the CNS and in the intestinal myenteric plexus,
- (b) Enterochromaffin cells in the mucosa of the gastrointestinal tract and
- (c) Blood platelets

Synthesis:

Serotonergic neurons and enterochromaffin cells can synthesize serotonin from its precursor amino acid L-tryptophan, whereas platelets rely upon uptake of serotonin for their stores. The biochemical pathway for serotonin synthesis initially involves the conversion of L-tryptophan to 5-hydroxytryptophan by the enzyme **L-tryptophan hydroxylase**. This enzyme provides the rate limiting step for serotonin synthesis.

Metabolism of serotonin is carried out primarily by the enzyme monoamine oxidase (MAO), The action of MAO converts serotonin to 5-hydroxyindole acetaldehyde which in turn is readily metabolized by aldehyde dehydrogenase to produce 5-hydroxyindole acetic acid as the major excreted metabolite of serotonin.

Carcinoid syndrome: are neuroendocrine tumours (NETs) of predominantly enterochromaffin cell origin (Kulchitsky cells). Carcinoid syndrome is made up of a constellation of symptoms which are caused by the release of a variety of substances (serotonin, histamine, and substance P, among others) by the carcinoid tumor. It may cause tryptophan deficiency and causes decrease in niacin synthesis leading to pellagra.

Ref: Principles of medical physiology, By Sabyasachi Sicar, Page 641.

63. Secretors are those who?

a) Secrete enzymes in blood

b) Secrete immunoglobulin [IgA] in intestine

c) Secrete blood group antigen in sweat/saliva

d) Secrete hormones in response to stress

Correct Answer - C

Ans. is 'c' i.e., Secrete blood group antigen in sweat/saliva

64. a-receptor of estrogens are?

a) Membrane receptors in breast

b) Nuclear receptors in breast

c) Membrane receptors in ovaries

d) Nuclear receptors in ovaries

Correct Answer - B

Ans. is 'b' i.e., Nuclear receptors in breast

(Ref: Principles of medical physiology p. 777).

- Estrogen binds to nuclear receptors --> Estrogen receptors (ERs)

65. True about calcium and phosphorus metabolism?

a) Parathormone increases phosphate reabsorption in PCT

b) Parathormone increases calcium reabsorption in PCT

c) Calcitriol increases phosphate reabsorption in PCT

d) Calcitriol decreases phosphate absorption in intestine

Correct Answer - C

Ans. is 'c' i.e., Calcitriol increases phosphate reabsorption in PCT

Calcitriol stimulates reabsorption of-

- Phosphate in PCT
- Ca^{2+} in DCT

PTH has following effects on reabsorption in kidney-

- It increases Ca^{2+} reabsorption in DCT (not in PCT)
- It decreases Phosphate reabsorption in PCT

66. Estradiol is a powerful inhibitor of FSH (follicle stimulating hormone). What is another factor that is a powerful inhibitor of FSH in the female?

a) Testosterone

b) Progesterone

c) LH

d) Inhibin

Correct Answer - D

Inhibin, as its name implies, is an inhibitor. The specific action of inhibin is to inhibit the release of FSH. Inhibin occurs as a heterodimer. It is produced in the male and the female. Inhibin is produced by the ovarian granulosa cells to prevent more than one follicle (in general) from becoming a mature follicle. The inhibin produced by the Sertoli cells of the testes acts to decrease FSH to help in regulation of spermatogenesis.

Ref: Molina P.E. (2013). Chapter 8. Male Reproductive System. In P.E. Molina (Ed), *Endocrine Physiology*, 4e.

67. In Autoregulation of hormone?

a) A hormone inhibits its own secretion directly

b) A hormone inhibits its own secretion by inhibiting regulatory hormone

c) Nervous system inhibits release of hormone

d) All of the above

Correct Answer - B

Ans. is 'b' i.e., A hormone inhibits its own secretion by inhibiting regulatory hormone.

Feedback control (Autoregulation):

- The process of inhibiting or stimulating the first step by the final step product in a hormonal reaction pathway, is called feedback regulation.

68. Action of calmodulin is:

a) Ca^{2+} dependent

b) Through calmodulin dependent kinases

c) Through CAMP dependent kinases

d) A & B

Correct Answer - D

A i.e. Ca^{2+} dependent; B i.e. Through calmodulin dependent kinase

Calmodulin

- It has 148 amino acid residues & 4 Ca^{++} binding domains. It's 115th aa. is trimethylated. It is extensively conserved & found in plants & animals both. Calmodulin is *involved in contraction of smooth muscle*. It helps in initiation of contraction, not by uncovering active site on actin molecule but by activating the myosin cross bridges.
- Is a *Ca^{2+} binding protein* present in many cells notably *in smooth muscles and brain cells*.
- Is a counterpart of Troponin. (Troponin is present in skeletal muscles)
- Calmodulin binds with Ca^{2+} & capable of activating 5 *different calmodulin dependent kinases*. They are:
 - (i) *Myosin heavy chain kinase* - it phosphorylates myosin head conferring with the capability of binding with actin filament. This brings about contraction in smooth muscle.
 - (ii) *Phosphorylase kinase*
 - (iii) Ca^{2+} Calmodulin kinase I & II: concerned with synaptic function
 - (iv) Ca^{2+} / Calmodulin kinase III: concerned with protein synthesis

69. Enterohepatic circulation occurs in?

a) Duodenum

b) Jejunum

c) Proximal ileum

d) Distal ileum

Correct Answer - D

Ans. is'd'i.e., Distal ileum

(Ref: Principles of medical physiology p. j89l

- About 500 ml of bile is secreted per day (20.8 mVhr) by the liver. In the gallbladder, bile is stored and concentrated.
- After a meal contraction of the gallbladder transfers a large volume of bile into the duodenum. Most of the bile is reabsorbed into terminal ileum and undergoes enterohepatic circulation.

70. Basic electrical rhythm is not seen in?

a) Stomach

b) Duodenum

c) Esophagus

d) Cecum

Correct Answer - C

Ans. is 'c' i.e., Esophagus | Ref: Ganong 24th/e p. 5041

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

a) Cl ?

b) K⁺

c) Na⁺

d) Ca²⁺

Correct Answer - C

Ans. C: Na⁺

Glucose enters cells by facilitated diffusion or, in the intestine and kidneys, by secondary active transport with Na⁺. 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.

72. Food causes reflex defecation?

a) Enterogastric reflex

b) Defecation reflex

c) Gastrocolic reflex

d) Rectoanal reflex

Correct Answer - C

Ans. is 'c' i.e., Gastrocolic reflex

[Rel Guyton 11th/e p. 771)

- Appearance of mass movements after a meal is facilitated by gastrocolic and duodenum reflexes.
- These reflexes result from the distension of the stomach and duodenum.
- The best example of gastrocolic reflex is seen in early infancy where defecation often follows a meal.

73. In free water clearance, free water is generated in?

a) PCT

b) Descending limb of loop of Henle

c) Ascending limb of loop of Henle

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Ascending limb of loop of Henle

(Ref: Medical physiology for undergraduate E-book p' 4381

- Free water or solute free water is generated in the diluting segments of the kidney (i.e. thick ascending limb and early distal tubules, where NaCl is reabsorbed and free water is left in the tubular fluid.

74. Free water clearance is positive when urine is

a) Dilute

b) Concentrate

c) Isotonic

d) Any of the above

Correct Answer - A

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

(Ref: Principles of Medical Physiology p' 391)

- Kidney excretes some solutes in the urine daily.
- The volume of water in urine, excreted per unit time in excess of that required to excrete the contained solutes is osmotically with plasma.
- Free water clearance is positive in dilute urine, negative when concentrated urine is passed and zero when isotonic urine is passed.

75. Which of following formula denotes free water clearance?

a) Urine flow rate multiplied by osmolal clearance

b) Urine flow rate minus osmolal clearance

c) Urine flow rate divided by osmolol clearance

d) Urine flow,rate plus osmolal clearance

Correct Answer - B

Ans. is'b'i.e., Urine flow rate minus osmolal clearance

Free water clearance (CH₂O):

- $CH_2O = V - C_{osm}$

76. Water reabsorption in loop of henle is?

a) Through aquaporin-1 in distending limb

b) Through aquaporin-1 in ascending limb

c) Due to ADH in ascending limb

d) Due to aquaporin-2 in ascending limb

Correct Answer - A

Ans. is 'a' i.e., Through aquaporin-I in descending limb

fRef: Principles of medical physiology p. 3121

- "Ascending limb of loop of Henle (especially thick ascending limb) is also called the diluting segment of nephron because of its ability to dilute the urine,"

Thin descending segment (limb):

- This segment is highly permeable to water and relatively impermeable to solutes (sodium, chloride and urea).
- Therefore, only water is reabsorbed from the thin descending limb of loop of Henle and the fluid in the descending limb becomes hypotonic.
- This water absorption is also obligatory and occurs through aquaporin-I water channel.
- No active secretion or reabsorption takes place in this segment.

77. In high potassium serum levels, kidney compensation occurs by?

- a) Decreased reabsorption in PCT
- b) Increased secretion in PCT
- c) Increased secretion in DCT
- d) Decreased reabsorption in loop of Henle

Correct Answer - C

Ans. is 'c' i.e., Increased secretion in DCT

[Ref: Guyton & hall p. 201

Potassium transport:

- Potassium is one of the few substances that are both reabsorbed as well as secreted by the renal tubules.
- The reabsorption of about two-thirds of the filtered K^+ occurs in the proximal tubules
- K^+ reabsorption as well as secretion takes place.
- Here also, reabsorption of K^+ occurs independent of K^+ status of the body.
- It is the secretory process that K^+ regulated by aldosterone in response to the K^+ and Na^+ status of body.

78. Normal urea excretion rate is?

a) 1-2 gm per day

b) 10-20 gm/day

c) 20-40 gm per day

d) 50-100 gm/day

Correct Answer - B

Ans. is 'b' i.e., 10-20 gm/day

(Ref: Medical physiology E Book 2d/e p. 767)

- "The physiologically normal individual excrete 12-20 gm of urea nitrogen in 24 hours"

79. Standard urea clearance in an normal adult is?

a) 20 ml

b) 50 ml

c) 100 ml

d) 200 ml

Correct Answer - B

Ans. is'b'i.e., 50 ml

[Dr Chatterjee, Shinile Sh/e p. 652]

- Standard clearance of urea (Cs) and average normal value is 54

80. In Kidney which of the following is true?

a) Osmolarity of tubular fluid in PCT gradually increases

b) Osmolarity of fluid in DCT is more than in Bowmann's capsule

c) Fluid coming out of descending limb of loop of Henle is hypotonic

d) Osmolarity of medullary interstitium is more than plasma

Correct Answer - D

Ans. is'd'i.e., Osmolarity of medullary interstitium is more than plasma

(Ref: Guyton 12/e p. 334)

- The renal medulla shows an increasing osmotic pressure with increasing depth.
- Starting, with an osmolarity of 300 mOsm/L in the cortex, the osmolarity reaches a level of 1200-1400 mosm/L at the pelvic tip of the medulla, i.e., The inner part of medulla has highest osmotic gradient.
- That means that the renal medullary interstitium has accumulated solute in greater excess of water.

81. Maximum potassium reabsorption occurs in?

a) Proximal convoluted tubule

b) Distal convoluted tubule

c) Cortical collecting duct

d) Medullary collecting duct

Correct Answer - A

Ans. is'a'i.e., Proximal convoluted tubule

[RI Guyton 12n/e p. 334)

Most of the solutes and water are maximally absorbed in proximal tubule :-

- 60-70% of Na^+ is reabsorbed along with 60-70% of Cl^-
- 60-70% of K^+ is reabsorbed

82. Slowest acting buffer system in the body ?

a) PCO₂ buffer

b) Respiratory buffer

c) Chemical buffer

d) Renal buffer

Correct Answer - D

Ans. is 'd' i.e., Renal buffer

(Re/ Principles of medical physiology p. 712)

- Not all buffer systems begin work at the same time.
- Chemical buffers respond first, followed by the respiratory system and finally, the renal system.

83. How to increase reabsorption of iso-osmolar fluid from glomerular filtrate?

a) Increased peritubular capillary pressure

b) Decreased osmotic pressure in peritubular capillaries

c) Increased corticomedullary osmotic gradient

d) Increased filtered load

Correct Answer - D

Ans. is 'd' i.e., Increased filtered load

(Ref: Principles of medical physiology p.786]

- Glomerulotubular balance refers to the fact that the total rate of reabsorption increases as the filtered load increases, even though the percentage of GFR reabsorbed in the proximal tubules remains relatively constant about 65%

84. PAH is used to measure?

a) Extracellular fluid

b) Glomerular filtration rate

c) Renal plasma flow

d) Plasma value

Correct Answer - C

Ans. is 'c' i.e., Renal plasma flow

[Rel Ganong 248/e p, 678-679)

- A substance which closely satisfies this description is para-aminohippuric acid (PAH), Therefore,
- PAH is used to measure renal plasma flow.
- The PAH clearance In a normal adult is about 625 mL minute. That's a measure of effective renal plasma flow (ERPF).
- PAH is only 90% excreted in the urine in a single passage through the kidney, i.e., its extraction ratio is 0.9 (90%).

85. True about cubulin receptors?

a) Present in small intestine

b) Prevents proteinuria

c) Prevents steatorrhea

d) All are correct

Correct Answer - B

Ans. is 'b' i.e., Prevents proteinuria

- Cubulin is a peripheral membrane protein, and therefore it does not have an endocytosis signaling sequence.
- Megalin is responsible for internalization of cubulin and its ligands in addition to internalizing its own ligands.
- The proteinuria observed in megalin-deficient mice, in dogs lacking functional cubulin and in patients with distinct mutations of the cubulin gene illustrates the importance of the receptors.

86. Delayed afterdepolarization implies?

a) Increased intracellular Ca²⁺

b) Excessive catecholamines

c) Digitalis toxicity

d) All of the above

Correct Answer - D

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

[Ref Principles of clinical medicine 3^d/e p. 1196]

- Delayed afterdepolarizations occur in late phase 3 or early phase 4 when the action potential is nearly of fully repolarized.
- The mechanism is poorly understood; however, this type of arrhythmia is found to be associated with high intracellular Ca²⁺ concentrations as occurs with digitalis toxicity or excessive catecholamine stimulation.
- The triggered impulse can lead to a series of rapid depolarizations (i.e. a tachyarrhythmia).

87. TRUE regarding action of alpha amylase

a) Breaks glucose from carbohydrate end

b) Cleaves only at a 1-4

c) Cleaves only at a 1-6

d) b & c

Correct Answer - B

B i.e. Cleaves only at (a 1-4)

a Amylase is a carbohydrate digesting enzyme found in saliva, pancreatic juice and intestinal juice. This enzyme hydrolyses a-1—>4 glycosidic bonds.

88. Which of the following inhibits gastrin secretion?

a) Intrinsic factor

b) Enterogastrone

c) Histamine

d) Gastrin

Correct Answer - B

Enterogastrone is secreted in the ileum. To a minor extent it inhibits gastric and pancreatic secretions. It inhibits the secretion of gastrin.

Gastrin:

Gastrin is produced by G cells in the antral portion of the gastric mucosa. **Functions of gastrin:** It increases gastric HCl secretion, decreases insulin secretion, stimulates GI mucosal growth and causes constriction of lower esophageal sphincter.

Stimuli that increase gastrin secretion:

- Luminal: distention, peptides and amino acids
- Increased vagal discharge via GRP
- Calcium
- Epinephrine

Stimuli that inhibit gastrin secretion

- Luminal: acid, somatostatin
- Secretin, GIP, VIP, glucagon, calcitonin

Ref: Barrett K.E., Barman S.M., Boitano S., Brooks H.L. (2012). Chapter 25. Overview of Gastrointestinal Function & Regulation. In K.E. Barrett, S.M. Barman, S. Boitano, H.L. Brooks (Eds), *Ganong's Review of Medical Physiology*, 24e.

89. The organ with maximum blood flow in ml/kg/min during resting is:

a) Kidney

b) Liver

c) Brain

d) Lungs

Correct Answer - A

Resting blood flow of various organs in a normal man:

Region (in kg)	mL/min	mL/100 g/min
Liver (2.6)	1500	57.7
<i>Kidneys (0.3)</i>	<i>1260</i>	<i>420.0</i>
Brain (1.4)	750	54.0
Skin (3.6)	462	12.8
Skeletal muscle (31.0)	840	2.7
Heart muscle (0.3)	250	84.0

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.

90. Conduction velocity in AV node & SA node?

a) 0.05 meter/sec

b) 0.5 meter/sec

c) 1 meter/sec

d) 5 meter/sec

Correct Answer - A

Ans .a.0.05 meter/sec [ref Genong2}n/eP' 522)

91. Which vessel regulates blood flow?

a) Artery

b) Arterioles

c) Venules

d) Capillaries

Correct Answer - B

Ans. b' arteriole

- Distribution of blood flow is mainly regulated by arteriole, by alteration in their diameter. Increase or decrease the peripheral resistance to blood flow.

92. Muscle hypotension is caused by?

a) Bradykinin

b) Actin

c) Myosin

d) Relaxin

Correct Answer - A

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

- Only bradykinin cause hypotension → Local hypotension in skeletal muscle (If pressure BP to fall below 50 mm Hg).

93. Most common cause of Cheyne-Stokes breathing is?

a) Diabetic ketoacidosis

b) CHF

c) Bulbar polio

d) Pontine hemorrhage

Correct Answer - B

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

(Ref Clinicalmedicine p. 713)

Cause of Cheyne-Stokes respiration,

- Normally occurs during sleep at high altitude
- Congestive cardiac failure
- Damage to respiratory centers

94. During normal inspiration diaphragm goes down by?

a) 1-2 cm

b) 3-5 cm

c) 5-7 cm

d) 7-9 cm

Correct Answer - A

Ans. is 'a' i.e., 1-2 cm

[Ref: Essentials of medical physiology p. 712]

- In normal inspiration, the diaphragm descends 1-2 cm into the abdominal cavity producing a pressure difference of 1-3 mm hg and the inhalation of about 500 ml of air.

95. Maximum voluntary ventilation is measured for?

a) 30 sec.

b) 60 sec.

c) 75 sec.

d) 120 sec.99.

Correct Answer - B

Ans. is'b'i.e., 60 sec.

(Ref: Guyton 12h/e p. 470]

Maximum voluntary ventilation (MW) :

- It is the maximum amount of air that can be moved into and out of lungs in 1 minute by voluntary effort.
- It is about 125-170 L/min.

96. Main content of bilayer cell membrane is:
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a) Glycerol

b) Cholesterol

c) Cholesterol ester

d) Triacyl glycerol

Correct Answer - B

Ans. B: Cholesterol

Biological membranes typically include several types of lipids other than phospholipids. A particularly important example in animal cells is cholesterol, which helps strengthen the bilayer and decrease its permeability.

Cholesterol also helps regulate the activity of certain integral membrane proteins. Integral membrane proteins function when incorporated into a lipid bilayer.

Because bilayers define the boundaries of the cell and its compartments, these membrane proteins are involved in many intra- and inter-cellular signaling processes.

97. In Caveola, the Caveolin molecule is attached to inner layer of plasma membrane by -

a) Desmin

b) Dynanin

c) Clathrin

d) Cavin

Correct Answer - D

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

[Rel Principles of medical physiology 4th/e p. 712]

- Caveolae are small flask-shaped depressions in the cell membrane.
- They are considered to be specialized forms of lipid rafts.
- They are formed when Caveolin proteins embed in the phospholipid bilayer of the membrane and distort it so that forms small flask-like pits.
- Caveolae are produced at the Golgi apparatus when Caveolin joins together in small groups (oligomers) and binds to cholesterol.
- These vesicles move to the cell surface and merge with the cell membrane.
- Here Cavin-I allow caveolir-I to interact with cell membrane to form Caveolae.

98. $\text{Na}^+ - 1\text{C}^+$ ATPase is a -

a) Extrinsic protein

b) Peripheral protein

c) Transmembrane protein

d) Intracellular proteins

Correct Answer - C

Ans. is 'c' i.e., Transmembrane protein

[Ref: Principles of medical physiology p. 512) .

- Ion pumps (including $\text{Na}^+ - \text{K}^+$ ATPase) and channels are integral (Transmembrane) proteins.

99. Shape of RBC is biconcave due to?

a) Ankyrin

b) Spectrin

c) Band protein

d) Glycophorin-C

Correct Answer - B

Ans. is `b' i.e., Spectrin

Membrane proteins of RBC

There are following membrane proteins of RBC:

(A) Integral proteins

- These are embedded in membrane via hydrophobic interactions with lipids

- Integral proteins are:

(I) Band-3: It has two functions:

- Anionic transport: Exchange bicarbonate for chloride
- Structural: Linkage of lipid bilayer to underlying membrane skeleton and important for prevention of surface loss.

Glycophorins: Imparts a negative charge to the cell, reducing interaction with endothelium and other cells.

Aquaporin 1: These selective pores for water transport allow RBC to remain in osmotic equilibrium with ECF

(B) Peripheral membrane proteins

- These are located on cytoplasmic surface of lipid bilayer, and constitute membrane cytoskeleton.
- These are anchored via integral proteins
- These are responsible for elasticity and maintenance of RBC shape & stability.
- Important peripheral proteins are:

- Spectrin: It is the chief protein component and is responsible for biconcave shape of RBC.
- Actin: Spectrin tail is associated with actin filament.
- Protein 4.1: Stabilises actin-spectrin interactions.
- Adducin: Stabilises actin-spectrin interactions.
- Ankyrin: *Interacts with band 3* and spectrin to achieve linkage between bilayer and skeleton. It is augmented *by protein 4.2*.

100. Release of synaptic transmitter by exocytosis would be blocked most effectively by preventing the:

- a) Propagation of the action potential into the nerve terminal membrane
- b) Depolarization of the nerve terminal membrane
- c) Flow of Na^+ into the nerve terminal membrane
- d) Flow of Ca^{2+} into the nerve terminal membrane

Correct Answer - D

Preventing the flow of Ca^{2+} into the cell would prevent the release of transmitter, because Ca^{2+} initiates the intracellular events leading to the docking of the vesicle to its binding site on the active zone. Although Ca^{2+} normally enters the cell through voltage-operated channels that are opened by the depolarization of the nerve terminal that occurs as the action potential propagates along the nerve axon, release of transmitter will not occur if Ca^{2+} does not enter the nerve terminal.

The flow of Na^+ into the nerve terminal would depolarize the membrane and open Ca^{2+} channels, leading to Ca^{2+} entry and exocytosis. However, Na^+ entry does not directly stimulate exocytosis. K^+ does not affect the nerve terminal membrane.

101. Which cell in cerebellum produces feed-forward inhibition -

a) Golgy cell

b) Basket cell

c) Granule cell

d) Stellate cell

Correct Answer - B

Ans. is 'b' i.e., Basket cell

[Rel Principal of medical physiology 3'd/e p. 139).

- In feed-forward inhibition, a neuron is connected through two pathways one excitatory and one inhibitory.
- For example, in cerebellum the stimulation of Basket cells produces IPSPs (inhibitory postsynaptic potentials) in Purkinje cells.

102. The minimum distance for two point discrimination on fingertips -

a) 2 mm

b) 5 mm

c) 7 mm

d) 10 mm

Correct Answer - A

Ans. is'a'i.e., 2mm

lRef: Ganong 25th/ep. 170 6 24'h/e p. 1621

- The magnitude of two point discrimination thresholds varies from place of place on the body and is smallest where touch receptors are most abundant.
- Stimulation points on the back must be separated by at least 65 mm before they can be distinguished as separate, whereas on the fingertips two stimuli are recognized if they are separated by as little as 2 mm.

103. Rhomboid major is supplied by which type of neuron?

a) Unipolar

b) Pseudounipolar

c) Bipolar

d) Multipolar

Correct Answer - D

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

(Ref: Principles of medical physiology p. 129)

- All skeletal muscles are supplied by motor neurons which are multipolar neurons.

104. Cortical area controlling vestibular function is located in ?

a) Frontal lobe

b) Parietal lobe

c) Occipital lobe

d) All of the above

Correct Answer - B

Ans. is'b'i.e., Parietal lobe

[Rel Gray's Anatomy'E book p. j20)

- Information from the vestibular nuclei also reaches the cerebral cortex by way of thalamus (probably via posterior parts of the ventroposterior complex and the medial pulvinar).
- The primary vestibular cortical area is located in the parietal lobe

105. Sympathetic system has adrenergic nerve endings at all sites except?

a) Heart

b) Blood vessels in skeletal muscles

c) Eye

d) None

Correct Answer - B

Ans. is 'b' i.e., Blood vessels in skeletal muscles

(Ref: Principles of medical physiology p. 241

- Sympathetic adrenergic fibers are those which secrete endogenous catecholamines (either adrenaline, nor-epinephrine / nor-adrenaline or dopamine)

Some sympathetic fibers do not secrete catecholamines but secrete acetylcholine -

- .. Sweat glands
- ?. Blood vessels in skeletal muscles

106. Location of α -1 sympathetic receptors?

a) Blood vessels

b) Bronchi

c) Sweat glands

d) Heart

Correct Answer - A

Ans. is'a' i.e., Blood vessels

(Ref: Ganong 25thie p. 260)

107. Relaxation of Detrusor occurs via which receptors?

a) β -1 sympathetic

b) β -2 sympathetic

c) α -1 sympathetic

d) α -2 sympathetic

Correct Answer - B

Ans. is 'b' i.e., β -2 sympathetic

- Relaxation of detrusor is through beta-2 receptors.

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

a) a-neuron

b) Gamma neuron

c) Beta neuron

d) Delta neuron

Correct Answer - B

Ans. is 'b' i.e., Gamma neuron

(Ref: Ganong 23'd/e p.158-162; Guyton 12n/e p. 657)

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

109. Find faulty statement regarding muscle spindle

a) Central zone has no active & myosin

b) Peripheral zone has no actin & myosin

c) Type 1 nuclear bag fibers has low myosin ATP ase activity

d) Type 2 nuclear bag fiber has has high level of myosin ATPase activity

Correct Answer - B

B i.e. Peripheral zone has no action & myosin

110. Non-specific nuclei of thalamus is related to which sense / function ?

a) Arousal / alerting

b) Pain & temperature

c) Olfaction

d) Posture

Correct Answer - A

Ans. is 'a' i.e., Arousal / Alerting

(Ref: Principles of medical physiology p. 717)

Non Specific Nuclei:

- These nuclei also receive sensory information but project to the cortex in a diverse manner.
- Therefore they seem to be involved in the arousal induced by sensory stimuli.
- These nuclei are intralaminar and reticular nuclei.

111. Rate limiting step in facilitated diffusion?

a) Availability of contransport

b) Conformational change in transporter

c) Synthesis of carrier protein

d) Polarization of solute

Correct Answer - B

Ans. is'b'i.e., Conformational change in transporter

(Ref: Essentials of membrane Biophysics p. 251).

- The relative slowness of the rate constant for conformational change reorienting the Solute-unoccupied transporter (Step-4) makes it the rate-limiting step in the process of facilitated diffusion.

112. Following occurs in living cells only?

a) Simple diffusion

b) Facilitated diffusion

c) Osmosis

d) Active transport

Correct Answer - D

Ans. is 'd' i.e., Active transport

[Ref Principles of medical physiology p.12]

- "Because the formation and breakdown of ATP require cell activity, active transport mechanisms occur through living membranes."
- Active transport require energy (ATP). Energy is produced in living cells. Therefore, active transport is possible only in living cells.

113. Concentration of urea on one side (side A) of permeable membrane is 20 and on other side (side B) is 40. If concentration on side A is increased to 40, what will happen to rate of diffusion?

a) It will become double

b) It will become four times

c) It will be zero

d) It will be reduced four times

Correct Answer - C

Ans. is 'c' i.e., It will be zero

[Ref: Principles of medical physiology p. 71)

- This question, the concentration gradient is zero as both sides (A & B) have same concentration (40) of urea.
- Thus there is no diffusion + Rate of diffusion is zero.

114. Demyelination is the major feature of Multiple Sclerosis. Which of the following cells forms myelin in the central nervous system?

a) Astrocytes

b) Ependymal cells

c) Microglia

d) Oligodendrocytes

Correct Answer - D

The myelin sheath is formed by oligodendrocytes in CNS and by Schwann cells in the peripheral nervous system (PNS).

The gaps formed between myelin sheath cells along the axons are called **nodes of Ranvier**.

Since the lipid structure of myelin serves as a good insulator, the myelin sheaths increase the rate of propagation and efficacy of transmission of the impulse along the axon.

The electrical impulse jumps from one node to the next at the rate as fast as 120 m/s. This rapid type of conduction is called **saltatory conduction**. Demyelination can occur early in life as consequence of congenital metabolic disorders. Demyelination later in life can be repaired with glia, which explains the frequent exacerbations and remissions in MS. It is believed that in MS, multiple mechanisms of immune injury of myelin coexist: cytokine-mediated injury of oligodendrocytes and myelin, digestion of surface myelin antigens by macrophages, complement-mediated injury, and direct injury by CD4+ and CD8+ T cells. This type of injury causes the loss of saltatory conduction in nerve fibers. The exposed axon is susceptible to further injury, resulting in irreversible axonal damage.

Glial cells do not carry action potentials, but they have many important functions. There are several **types of glial cells: astrocytes**, which transport nutrients to neurons, hold neurons in place, digest parts of dead neurons, and regulate the composition of extracellular space, and **microglia**, which possess phagocytic function, clean up debris, and protect the brain from microorganisms.

Ependymal cells form the epithelial lining of the ventricle.

Ref: Lomen-Hoerth C., Messing R.O. (2010). Chapter 7. Nervous System Disorders. In S.J. McPhee, G.D. Hammer (Eds), Pathophysiology of Disease, 6e.

115. Blood Brain Barrier is/are formed by:

a) Oligodendrocytes

b) Microglial cell

c) Astrocytes

d) Schwann cell

Correct Answer - C
C i.e. Astrocytes; E i.e. Neuroglia

116. Which of the following are unmyelinated nerve fibers?

a) Proprioceptive fibers

b) Motor neuron to muscle

c) Postganglionic sympathetic fibers

d) Motor nerve to intrafusal fibers

Correct Answer - C

Ans. is 'c' i.e., Postganglionic sympathetic fibers

[Ref Ganong 24h/e p. 92; Principles of medical physiology p. 512]

- Type C fibers are unmyelinated fibers which include postganglionic autonomic fibers,

117. cGMP is involved in which pathway?

a) Taste

b) Phototransduction

c) Smell

d) Olfaction

Correct Answer - B:C:D

Ans. is 'b' > c & d' i.e., Phototransduction > Smell & Olfaction

- "cGMP regulates retinal phototransduction in rod cone photoreceptors, and cAMP & cGMP regulate olfaction".

118. Sensory receptors with delayed recovery and least coverage?

a) Pacinon corpuscle

b) Ruffini endings

c) Meissner corpuscle

d) Merkel's disc

Correct Answer - D

Ans. D. Merkel's disk

Receptive field of sensory receptors :

- Smallest receptive field (Least coverage) : Merkel's disc, Meissner corpuscles ii) Wide receptive field : Pacinian corpuscle, Ruffini end organ (Ruffini corpuscle)

Adaptation of sensory receptors :-

- Rapidly adapting (rapid recovery) → Meissner's corpuscles, Pacinian corpuscles, II) Slowly adapting (delayed recovery) -4
Merkel's disc, Ruffini's end organs

119. Leptin is secreted by?

a) Ovaries

b) Adipose tissue

c) Liver

d) Hypothalamus

Correct Answer - B

Ans, B, Adipose tissue.

(Ref: *Principles of medical physiology* p.p'704)

- Leptin is a protein hormone produced by fat cells of adipose tissue.
- It acts on hypothalamus to reduce food intake, decrease lipogenesis and increase lipolysis, thereby reducing the body fat stores.

120. Which extrapyramidal tract act along with lateral spinothalamic tract?

a) Reticulospinal tract

b) Rubrospinal tract

c) Tectospinal tract

d) Vestibulospinal tract

Correct Answer - B

Ans. b Rubrospinal tract

[Rpf Genong 2n/e P' 241)

- Descending tracts concerned with distal muscles of the limb those muscles which mediate fine skilled movements) occupy lateral white column and are called lateral pathways, Lateral pathways include lateral corticospinal tract and rubrospinal tracts.

121. Resting membrane potential in cardiac muscle ?

a) -70 mV

b) +70 mV

c) -90 mV

d) +90 mV

Correct Answer - C

Ans. is 'c' i.e., -90 mV

Normal RMP in myocardial fibers is about -90 mV.

122. Position in decorticate rigidity ?

a) Flexion of elbow and extension of knee

b) Extension of elbow and flexion of knee

c) Flexion of elbow and knee

d) Extension of elbow and knee

Correct Answer - A

Ans. is 'a' I.e., Flexion of elbow and extension of knee

[Ref Principles of medical physiology p, 629]

- A decorticate rigidity is made by removing the whole cerebral cortex but leaving the basal ganglia intact.
- Decorticate rigidity is characterized by flexion of upper extremities at elbow and extension of lower extremities.
- The flexion is due to rubrospinal tract excitation of flexors in the upper extremities and hyperextension of the lower extremity has same mechanism as in decerebrate rigidity.

123. During Flight or Fight reaction, which of the following is responsible for increase in local blood flow :

a) Sympathetic system mediated Cholinergic release

b) Local hormones

c) Para-sympathetic cholinergic

d) Endocrine factors only

Correct Answer - A

A i.e. Sympathetic mediated cholinergic release

The 'flight or fight' reaction is a *sympathetic alarm reaction* wherein a large portion of sympathetic nervous system discharged at the same time, in response to a variety of stress.

124. All are true regarding corticospinal tract except?

a) Also called pyramidal tract

b) Maximum fibers arise from primary motor cortex

c) Forms pyramids in medulla

d) 80% fibers are crossed

Correct Answer - B

Ans. is 'b' I.e., Maximum fibers arise from primary motor cortex

[Ref Principles of medical physiology p.238-239

- Corticospinal tract is the most important tract through which the motor cortex controls the activity of the ventral horn cells (alpha-motor neurons) in the spinal cord.
- It is also called pyramidal tract because they form the pyramid of the medulla.

125. Which hormone is secreted from stomach that control intake of food:

a) Orexin

b) Insulin like growth hormone

c) Cholecystokinin

d) Ghrelin

Correct Answer - D

Ans. D i.e. Ghrelin

- Ghrelin, is released by stomachs, especially during fasting and stimulates appetites (orexigenic).
- CCK, Peptide YY/PYY (secreted from entire GIT but especially from ileum & colon), glucagon like peptide (secreted by intestines d/t presence of food) and insulin (produced in response to GLP) are gastrointestinal hormonal factors, which suppress feeding i.e. cause satiety (anorexigenic). Whereas, ghrelin another gastrointestinal hormone produced mainly by stomach is orexigenic (i.e. increase appetite).
- Growth hormone (GH) also k/a somatotrophic hormone or somatotropin exerts much of its effects through intermediate substances called somatomedins secreted by liver (and to a much less extent, other tissues). Because many effects of somatomedins on growth are similar to those of insulin, therefore somatomedins are also called insulin like growth factors (IGFs). Out of 4 somatomedins isolated, the most important is somatomedin C (or IGF-1) and pygmies of Africa & Levi-Lorain dwarf have congenital inability to synthesize significant amount of IGF-1.
- Orexin (hypocretin) producing neurons occur in hypothalamus. Orexins A and B increase feeding (appetite) whereas, brains from

humans with narcolepsy have fewer orexin producing neurons in hypothalamus. - Cholecystokinin (CCK) is secreted by I cells of upper small intestine (jejunum) and decreases feeding (antiorexigenic / aorexigenic), inhibits gastric emptying, and stimulates secretion of pancreatic juice rich in enzymes, contraction of gall bladder, secretion of glucagon & insulin and small intestine & colonic motility.

- It is a gastrointestinal hormone synthesized & released mainly by oxyntic cells of stomach (Guyton) / P or **D1** cells of fundus of stomach. It is also produced by the intestine & epsilon cells of pancreas in small amounts. Ghrelin acts to stimulate hunger (appetite). So blood levels rise during fasting, peak just before eating and then fall rapidly after a meal (orexigenic). In this way, it is counter part of hormone leptin, produced by adipose tissue, which induces satiation (i.e. is anti-orexigenic) when present at higher levels.
- Ghrelin is also produced in arcuate nucleus of hypothalamus and has marked growth hormone stimulating activity i.e. it stimulates GH secretion from anterior pituitary gland by acting directly on receptors in pituitary.
- G protein coupled ghrelin receptor formerly k/a growth hormone secretagogue (GHS) receptor is expressed in arcuate nucleus, lateral hypothalamus, vagal afferent cell bodies & vagal afferent endings through out gastrointestinal tract.
- It has an important role in neurotropy, particularly in hippocampus and is essential for cognitive adaptation to changing environment and process of learning.

126. Which of the following is most prone to hypoxic injury ?

a) Thalamus

b) Hippocampus

c) Caudate nucleus

d) Caudate nucleus

Correct Answer - B
B i.e. Hippocampus

127. Amount of coronary flow per minute is?

a) 225 ml

b) 250 ml

c) 50 ml

d) 300 ml

Correct Answer - B
Ans. B i.e. 250 ml

128. What is produced by lung tissue to be used in lungs?

a) Angiotensin I

b) Renin

c) Surfactant

d) Angiotensin II

Correct Answer - C

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

Among the given options, two substances are formed in lung-

- Surfactant: Used by lungs alveoli to reduce surface tension.
- Angiotensin II : ACE in lungs convert angiotensin I to angiotensin II. But angiotensin II mainly acts on blood vessels, kidney and adrenal cortex.

129. Non-respiratory function of lungs ?

a) Anion balance

b) Sodium balance

c) Potassium balance

d) Calcium balance

Correct Answer - B

Ans. is 'b' i.e., Sodium balance

(Ref: Lecture notes on human physiology 4th/e p. 400]

One of the most important metabolic (non-respiratory) function of lungs:

- As a part of renin-angiotensin-aldosterone system, lungs indirectly regulate sodium and water balance (and BP).
- However, lungs also directly affect Na⁺ balance is epithelial Na⁺ channels (E NaCs).

130. Functional residual volume is?

a) After normal inspiration

b) After normal expiration

c) After forceful expiration

d) After forceful inspiration

Correct Answer - A

Ans:A. After normal inspiration

- Functional Residual Capacity (FRC) is the volume of air present in the lungs at the end of passive expiration.

131. Largest protein in body is ?

a) Titin

b) Myosin

c) Actin

d) Troponin

Correct Answer - A

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

- Titin is a muscle protein
- It connects Z lines with M line in a sarcomere
- It is responsible for passive elasticity of a muscle
- Titin is the third most abundant protein of human body (after myosin and actin)
- Titin is the largest protein in human body. It has 34350 aminoacids.

132. G protein of G protein coupled receptors are attached to?

a) Aminoterminal end

b) Carboxyterminal end

c) Third transmembrane domain

d) Seventh transmembrane domain

Correct Answer - B

Ans. is 'b' i.e., Carboxyterminal end

- G protein coupled receptors are receptors which are coupled to G protein, G proteins are proteins which get activated on binding to GTP
- There are two types of G proteins, Small G proteins, Heterotrimeric G proteins

133. When glucose concentration in blood increases, there is linear increase in?

a) Insulin

b) Glucagon

c) Growth Hormone

d) Cortisol

Correct Answer - A

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

- When blood glucose concentration increases, glucose enters into pancreatic β cells. Glucose goes through glycolysis and citric acid cycle in β cells. ATP is generated. ATP closes K^+ channels. This causes depolarization of pancreatic β cells. Depolarisation and the resultant action potential opens up voltage gated calcium channels. Entry of calcium ions causes exocytosis of insulin release.

134. Which of the following is action of insulin ?

a) Gluconeogenesis

b) Increased glucose uptake in muscle

c) Glycogenolysis

d) Increased glucose uptake in endothelium

Correct Answer - B

Ans. is '**b**' i.e., Increased glucose uptake in muscle

- Insulin is a hypoglycemic and anabolic hormone Immediate effects of insulin:
- Immediate effects of insulin include the effect of insulin on causing glucose and potassium uptake into cells, Insulin stimulates glucose uptake into cells by Stimulating GLUT4 transporter up regulation across the membranes of skeletal muscle, cardiac muscle and adipose tissue
- Stimulating glucokinase in liver. As glucokinase is stimulated in liver, glucose in liver is converted to glucose 6 phosphate. This reduces glucose level within hepatocytes. This stimulates further glucose uptake into hepatocytes

135. Hepatic encephalopathy is caused by an increase of ?

a) Urea

b) Glutamate

c) Ammonia

d) Fattyacid

Correct Answer - C

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

- Hepatic encephalopathy is characterized by altered level of consciousness, caused by liver disorder.
- Liver disorder is characterized by elevation of ammonia. As liver is considered with detoxification of ammonia to form urea, in liver failure ammonia level is elevated.
- Hepatic encephalopathy basically presents with manifestations of CNS depression

136. Products of Phospholipase C are ?

a) Inositol and diacylglycerol

b) Inositol triphosphate and Diacylglycerol

c) Lysophospholipid and fattyacid

d) Phosphatidate and IP2

Correct Answer - B

Ans. is 'B' i.e., Inositol triphosphate and Diacylglycerol

- IP3 or Inositol triphosphate and DAG or Diacyl glycerol are second messengers formed from Phosphatidyl inositol diphosphate (PIP₂) by the action of Phospholipase C.
- Activation of phospholipase (by stimulatory G protein) hydrolyses the membrane phospholipid phosphatidyl inositol 4, 5 bisphosphate (PIP₂) to generate the second messenger inositol 1, 4, 5 - triphosphate (IP) and diacylglycerol (DAG).

137. Hepcidin associated with which molecule?

a) Iron

b) Copper

c) Selenium

d) Fluorine

Correct Answer - A

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

- Hepcidin is a positive acute phase reactant. Hence during inflammation, liver releases more hepcidin. This inhibits basolateral side transport of iron along intestine. This results in a hematological picture which mimics iron deficiency anemia. This is the basis of Anemia of Chronic Disease

138. Synthetic Oxygen carrier is made up of_

a) Iron

b) Bronze

c) Molybdenum

d) Flurine

Correct Answer - D

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

- Blood doping is a form of fraudulent increase in the oxygen carrying capacity of a person, widely used to improve the aerobic capacity of athletes.

139. Hardening of sodalime done by?

a) CaCO

b) CaSO₄

c) BaSO₄

d) Sodium silicate

Correct Answer - D

Ans. is 'd' i.e., Sodium silicate

- Soda lime is a mixture of chemicals, used in granular form in closed breathing environments, such as general anaesthesia to remove carbon dioxide from breathing gases to avoid hypercarbia

140. Unit of turbidity is calculated by ?

a) Measuring the scattered light at 90°

b) Measuring the scattered light at 180°

c) Measuring the scattered light at 270°

d) Measuring scattered light at 135°

Correct Answer - A

Ans: A. Measuring the scattered light at 90°

- IT is involved with measuring the amount of transmitted light (and calculating the absorbed light) by particles in suspension to determine the concentration of the substance in question.
- Amount of absorbed light, and therefore, concentration is dependent on, Number of particles, Size of particles, Measurements are made using light spectrophotometers
- Turbidity Unit is the International Standard Unit. Both measure the light scattered at 90° . NTU uses white light with peak spectral output at 400 to 680nm as light source. FTU uses Infrared monochromatic light with peak output at 780 to 900nm as light source.

141. Nephelometry measures the light?

a) Absorbed

b) transmitted

c) Scattered

d) Refracted

Correct Answer - C

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

- When particles are suspended in a solution in a cuvette, they make the solution unclear (turbid).
- Nephelometry is concerned with measurement of scattered light from a cuvette containing suspended particles in a dilute solution.
- The components of a nephelometer are the same as a light spectrophotometer except that the detector is placed at a specific angle from the incident light

142. Collagen protein axial periodicity is -

a) 67nm

b) 107nm

c) 207nm

d) 307nm

Correct Answer - A

Ans. is 'a' i.e., 67 nm.

- The fibrillogenesis involves the lateral association of collagen triple helices, the structural unit of collagen, to form long, smooth fibrils with a *characteristic 67-nm axial structural* feature known as the D-periodicity or axial periodicity.

143. Primary bile acid secreted by liver is ?

a) Chenodeoxycholic acid

b) Lithocholic acid

c) Deoxycholic acid

d) Lithodeoxycholate

Correct Answer - A

Ans. is 'a' i.e., Chenodeoxycholic acid [Ref: Ganong 22nd/e p. 26]

- The primary bile acids are produced from cholesterol in liver. These are cholic acid and chenodeoxycholic acid. These are conjugated with glycine or taurine. So primary bile acids are glycocholic acid, glycochenodeoxycholic acid, taurocholic acid, and taurochenodeoxycholic acid. The primary bile acids are secreted in bile and in the lower parts of small intestine, primary bile acids are converted to secondary bile acids by bacterial enzymes. Secondary bile acids are deoxycholic acid and lithocholic acid.

144. Concentration of which of the following is maximum in a cell next to water ?

a) Protein

b) Fat

c) Sodium

d) Carbohydrates

Correct Answer - A

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

- Most of the cytosol is water, which makes up about 70% of the total volume of a typical cell.
- Next higher concentration is of proteins. Protein molecules that do not bind to cell membranes or the cytoskeleton are dissolved in the cytosol. The amount of protein in cells is extremely high, and approaches 200 mg/ml, occupying about 20-30% of the volume of the cytosol

145. True about chaperone?

a) Also known as HS proteins

b) Have ATPase activity

c) Always bind to specific areas on unfolded proteins

d) They always acts as foldases

Correct Answer - A

Ans. is 'a' i.e., Also known as HS proteins

- Chaperones are proteins which help in folding or unfolding of proteins
- Molecular chaperones prevent aggregation and promote refolding after stress and hence promote cell survival. This so-called stress response is ubiquitous and conserved across all organisms. Hence Chaperones are otherwise known as heat shock proteins (HSP)
- Chaperones are synthesized in response to heat and other stress conditions like exposure to heavy metals, UV radiation, oxidative stress, nutrient deficiencies, dehydration, osmotic pressures and viral infections. Hence, they are otherwise called as stress proteins

146. Best sample for DNA karyotyping ?

a) Blood

b) Bone marrow

c) Amniotic fluid

d) Chorionic villi

Correct Answer - A

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

- Karyotyping is the study of number and appearance of chromosomes,
- Most commonly used sample is blood. Blood is centrifuged. WBCs are separated. White Blood cells are rapidly dividing cells with DNA.

147. Taq DNA polymerase true is ?

a) Thermolabile

b) High fidelity

c) Optimum temperature for chain elongation is 75°

d) Has 3'S' exonuclease activity

Correct Answer - C

Ans. is 'c' i.e., Optimum temperature for chain elongation is 75° [Ref *Clinical biochemistry p. 888*]

- As the DNA polymerase that is used in this process should be capable of withstanding repeated cycles of 94 or 95°C, the enzyme should be thermostable. Hence the DNA polymerase used in Polymerase Chain Reaction is extracted from an organism which lives in hot springs. That organism being *Thermus aquaticus* and hence the DNA polymerase is Taq DNA polymerase.
- Optimum temperature required for this enzyme for elongation is 75°C. Hence elongation is carried out at 72°C.

148. Epigenetics is ?

a) Alteration in nucleotide sequence

b) Alteration in chromosome number

c) Alteration in gene expression

d) Alteration in chromosome size

Correct Answer - C

Ans. is 'c' i.e., Alteration in gene expression [*Ref Essentials of molecular biochemistry p. 321*]

- Epigenetics is a heritable change in the level of gene expression, not caused by changes in DNA sequence. It includes changes like Histone modification or DNA methylation

149. Which radioisotope labeled molecule is used to find out rate of DNA synthesis?

a) [H3] Thymidine

b) [H2] Thymidine

c) [H3] Adenine

d) [H2] Adenine

Correct Answer - A

Ans. is 'a' i.e., [H3] Thymidine [*Ref Essentials of molecular biochemistry p. 321*]

- One application of isotope labeling would be in measuring DNA synthesis, that is cell proliferation in vitro. uses [H3]- thymidine labeling to compare pattern of synthesis (or sequence) in cells.

150. Which of the following is an example of post translational modification ?

a) Gamma carboxylation of glutamate residues

b) N glycosylation of proteins

c) 7 methyl Guanosine capping

d) Poly A tail addition

Correct Answer - B

Ans. is 'a > b' i.e, **Gamma carboxylation of glutamate residues**, N glycosylation of proteins

[Ref Lippin cott's 3/e p. 429]

Important post-transcriptional modifications are?

- 7 methyl guanosine capping along 5' end of mRNA
- Poly A tail addition along 3' end of mRNA
- Removal of introns and linkage of exons - RNA splicing

151. Disease caused by trinucleotide repeats are all except?

a) Huntington's chorea

b) Myotonic dystrophy [dystrophia myotonica]

c) Friedrich's ataxia

d) Hereditary Nonpolyposis Colon Cancer

Correct Answer - D

Ans. is 'd' i.e., Hereditary Nonpolyposis Colon Cancer [Ref *Essentials of biochemistry p. 676*]

Examples of trinucleotide repeat mutation :?

1) Huntington's disease

2)

Spinocerebella ataxia

3) Friedreich ataxia

4) Fragile - X-

syndrome

5) Dystrophia myotonica

6) Dentorubral

pallidoluysiane atrophy 7) X-chromosome spinobulbar muscular

atrophy

152. Watson and Crick are associated with ?

a) Discovery of helical structure of DNA

b) Association of Helicobacter pylori with chronic gastritis

c) Discovery of HIV virus

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Discovery of helical structure of DNA

153. Pulsed gel electrophoresis is used for?

a) DNA

b) RNA

c) Ribosome

d) Protein

Correct Answer - A

Ans. is 'a' i.e., DNA [*Ref Essential of biochemistry p. 912*]

- Large DNA of size larger than 15 to 20 KB can be separated with higher resolution by periodically changing the voltage direction. This is called as pulsed gel Electrophoresis

154. Which of the following can carry larger genome ?

a) Plasmids

b) BAC

c) YAC

d) Cosmids

Correct Answer - C

Ans. is 'c' i.e., YAC [*Ref Harper's 30th/e p. 454 & 29th/e p. 437*]

Vector	DNA insert size
Plasmid	0.01-10 kb
Phage	10-20 kb
Cosmid	35-50 kb
BAC, PAC	50-250 kb
YAC	500-3000 kb

155. Which micronutrient deficiency causes anemia?

a) Copper

b) Molybdenum

c) Selenium

d) Fluorine

Correct Answer - A

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

- Copper containing protein ceruloplasmin is necessary for transport of iron in the Ferric form across membranes
- Copper is an integral component of ALA synthase, which is necessary for heme synthesis
- Copper helps in the uptake of iron across normoblasts

156. Which of the following is a component of Coenzyme A?

a) 3 Alanine

b) Glycine

c) Pyrrolysine

d) Selenocysteine

Correct Answer - A

Ans. is 'a' i.e., 3 Alanine

- Coenzyme A is a carrier of acyl group. Hence it takes part of fatty acid synthesis and fatty acid oxidation
- It is formed from pantothenic acid and mercaptoethanolamine, Pantothenic acid is formed from pantoic acid and p alanine

157. B12 deficiency causes ?

a) Demyelination

b) Dermatitis

c) Burning foot syndrome

d) Beriberi

Correct Answer - A

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

- B12 in the form of Adenosyl B12 acts as a coenzyme for Methyl malonyl CoA mutase. Methyl Malonyl CoA mutase helps in the conversion of methyl malonyl CoA to Succinyl CoA.
- in B12 deficiency, methyl malonyl CoA accumulates. Methyl Malonyl CoA gets incorporated into fatty acids (instead of malonyl CoA).
- This results in abnormal fatty acids getting synthesized. When these fatty acids get incorporated in myelin, it results in rapid demyelination

158. Deficiency of zinc causes all except ?

a) Diarrhea

b) Acrodermatitis

c) Vitamin A deficiency

d) Neuropathy

Correct Answer - D

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

- Zinc is found in skeletal muscle and in bones, Sources of Zinc are grains, beans, cheese, Shell fish
- Zinc is absorbed from duodenum, stored in liver in conjugation with metallothionein
- Zinc is necessary for synthesis of Retinol Binding Protein.
- Hence Zinc deficiency is found to present with Vitamin A deficiency

159. Hemopexin binds ?

a) Heme

b) Hemoglobin

c) Iron

d) Bilirubin

Correct Answer - A

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

- Hemopexin is a glycoprotein which exhibits the highest affinity for free heme
- Hemopexin's function is to protect the cell and tissues from oxidative damage caused by heme. Because hemopexin does not only bind to free heme but also facilitates the uptake of heme into liver by binding to specific receptors on hepatocytes.
- Hence hemopexin helps in recycling iron and the iron stores are maintained. Hemopexin is also found to cause an upregulation of heme oxygenase 1 enzyme, thereby they facilitate the conversion of heme into bilirubin and biliverdin.

160. Common substrate for purine and pyrimidine synthesis are all except ?

a) Glutamine

b) Glycine

c) Aspartate

d) Carbon dioxide

Correct Answer - B

Ans. is b i.e., Glycine [Ref Harper 30thle p. 348]

- Glutamine, aspartate (aspartic acid) and CO, are precursors for both purines & pyrimidines.
- In de novo synthesis, purine ring is formed from variety of precursors is assembled on ribose-5-phosphate.

161. Guanine ring - True are all except ?

a) It has 9 atoms

b) Aspartate acts as the amino group donor for forming guanine

c) Carbonyl group at C6 acts as a hydrogen bond acceptor

d) It forms three hydrogen bonds with cytosine

Correct Answer - B

Ans. is 'b' i.e., Aspartate acts as the amino group donor for forming guanine

- Guanine ring is a purine ring. Hence it has nine atoms included in the ring.
- It is formed from IMP (Inosine Mono Phosphate). IMP undergoes dehydrogenation, in the presence of IMP dehydrogenase (NADP is the coenzyme) to form Xanthosine Mono Phosphate (XMP). XMP undergoes amination with glutamine to form GMP.
- On the other hand, IMP undergoes amination with Aspartate to form Adenylosuccinate. Adenylosuccinate in the presence of Adenylosuccinate lyase to form AMP and fumarate.

162. The protein rich in basic amino acids, which functions in the packaging of DNA in chromosomes, is:

a) Histone

b) Collagen

c) Hyaluronic acid binding protein

d) Fibrinogen

Correct Answer - A
A i.e. Histone

163. Which enzyme joins two substrates?

a) Lyase

b) Ligase

c) Isomerase

d) Synthase

Correct Answer - B

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

[Ref Chatterjea 8thie p. 123-124]

- An enzyme which joins two substrates in an energy dependent process is called ligase.
- Ligases ligate or bind two compounds together by creating a new chemical bond. A source of energy is required, usually ATP, Example are synthatases, carboxylases.

164. Trypsin, Chymotrypsin & Elastases - What type of enzymes are they?

a) Hydrolases

b) Lyases

c) Synthases

d) Synthetases

Correct Answer - A

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

- All digestive enzymes (trypsin, pepsin, elastase, chymotrypsin) are hydrolases.

165. True about allosteric enzyme?

a) Single unit enzyme

b) Follows saturation kinetics

c) Allosteric activity is more prominent in the active site of the enzyme

d) Hill's equation is used to study the kinetics of allosteric enzyme

Correct Answer - D

Ans. is 'd' i.e., Hill's equation is used to study the kinetics of allosteric enzyme

- Allosteric enzyme is an enzyme in which activity in one subunit affects activity in another subunit. Hence allosteric enzymes are mostly multi subunit enzymes.
- Most commonly, in an allosteric enzyme, binding of an allosteric regulator to an allosteric site, affects activity in the active site of an enzyme.

166. Allosteric inhibition of an enzyme is ?

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

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

c) Inhibition of enzyme by inhibitors without binding to enzyme

d) Inactivation by phosphorylation or dephosphorylation

Correct Answer - B

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

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

167. Which of the following aminoacids is a component of Thioredoxin reductase?

a) Selenocysteine

b) Cysteine

c) Methionine

d) Homocysteine

Correct Answer - A

Ans. is 'a' i.e., Selenocysteine [Ref Dinesh purl 22nd/e p. 72]

- Selenocysteine is present at the active site of some enzymes that catalyze redox reactions, e.g. thioredoxin reductase, glutathione peroxidase, and the deiodinase (converts thyroxin to triiothyronine).

168. Co enzyme for dopa decarboxylase?

a) Biotin

b) Vitamin B6

c) Vitamin C

d) B12

Correct Answer - B

Ans. is 'b' i.e., Vitamin B6

All decarboxylases require pyridoxin (vitamin B6)

169. Example of metallo enzyme is ?

a) Lysyl oxidase

b) Lysyl hydroxylase

c) Prolyl hydroxylase

d) Glucosyl transferase

Correct Answer - A

Ans. is 'a' i.e., Lysyl oxidase

[Ref Harper 30th p. 675]

Lysyl oxidase is a metalloenzyme (copper containing

170. True about transfer of electrons in electron transport chain is ?

- a) All the complexes are arranged in an increasing order of redox potential
- b) The direction of transport of electrons in C - Complex III Q - Complex I -> Complex IV
- c) All the complexes are arranged in an increasing order of energy
- d) 10 hydrogen ions get translocated when FADH₂ electrons get into electron transport chain

Correct Answer - A

Ans. is 'a' i.e., All the complexes are arranged in an increasing order of redox potential.

- The complexes of electron transport chain are arranged in an increasing order of redox potential or decreasing order of energy level.
- The direction of transport of electrons from NADH is Complex I -> Q -> Complex III -> Complex C -> Complex IV -> Oxygen.
- The direction of transport of electrons from FADH₂ is Complex II -> Q -> Complex III -> Complex C -> Complex IV -> Oxygen.

171. GLUT 4 is present in ?

a) Endothelium

b) Liver

c) Cardiac muscle

d) Lens

Correct Answer - C

Ans. is 'c' i.e., Cardiac muscle

- GLUT4 transporters mediate insulin dependent glucose uptake in skeletal muscle, cardiac muscle and adipose tissue.

172. Inulin is a homopolymer of ?

a) Fructose

b) Glucose

c) Mannose

d) Galactose

Correct Answer - A

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

- Inulin is a homopolymer made up of fructose.

173. True about carbohydrate absorption?

a) Glucose absorption occurs independent of sodium

b) Fructose absorption occurs dependent on Na

c) Fructose absorption occurs via SGLT 1

d) Fructose absorption is not by secondary active transport

Correct Answer - D

Ans. is 'd' i.e., Fructose absorption is not by secondary active transport

Glucose absorption

- Fructose absorption along the apical side is by GLUT 5 transporter.
- GLUT 5 transporter is an example of facilitated passive diffusion
- Fructose absorption along the basolateral side is by GLUT 5 transporter or through GLUT 2 transporter
- Thus Fructose absorption along both apical side and basolateral side is by facilitated passive diffusion.

174. In Citric acid cycle, which enzyme is inhibited by arsenite?

a) Isocitrate Dehydrogenase

b) a ketoglutarate Dehydrogenase

c) Succinate Dehydrogenase

d) Aconitase

Correct Answer - B

Ans. is 'b' i.e., a ketoglutarate Dehydrogenase

- Arsenite binds to the sulfhydryl group and hence inhibits the activity of enzymes which have lipoamide in the active site, Hence Arsenite inhibits Pyruvate Dehydrogenase and a ketoglutarate dehydrogenase of citric acid cycle, It is an example for non competitive inhibition, Succinate dehydrogenase is inhibited by malonate.

175. Maximum number of enzymes of krebs cycle are found in ?

a) Mitochondrial matrix

b) Intermembrane space

c) Cytosol

d) Ribosome

Correct Answer - A

Ans. is 'a' i.e., Mitochondrial matrix

- Kreb's cycle or citric acid cycle happens in mitochondria. All enzymes of citric acid cycle are present in mitochondrial matrix.

176. Overingestion of fructose leads to ?

a) Hypertriglycreidemia

b) Hypouricemia

c) Hyperphosphatemia

d) Hypoglycemia

Correct Answer - A

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

- As Fructokinase is very active, following fructose ingestion, there is increased utilization of ATP forming more ADP and AMP. AMP on catabolism gives rise to uric acid. Hence it results in hyperuricemia.
- A person who is on fructose based diet ends up getting hypertriglyceridemia and hypercholesterolemia.

177. What are the enzymes required for the formation of Phosphoenolpyruvate from Pyruvate?

- a) Pyruvate dehydrogenase and Pyruvate carboxylase
- b) Lactate Dehydrogenase and Pyruvate Dehydrogenase
- c) Pyruvate carboxylase and Phosphoenolpyruvate Carboxykinase
- d) Phosphoenolpyruvate carboxykinase and Pyruvate Dehydrogenase

Correct Answer - C

Ans. is 'c' i.e., Pyruvate carboxylase and Phosphoenolpyruvate Carboxykinase

- Pyruvate conversion to Phosphoenol pyruvate is a part of gluconeogenesis, Pyruvate is converted to Oxaloacetate by Pyruvate Carboxylase, Pyruvate Carboxylase requires Biotin as coenzyme. It uses Carbondioxide in the form of Bicarbonate. It uses ATP as a source of energy.

178. Maximum number of energy rich phosphate is formed from which of the following pathways?

a) Glycolysis

b) Gluconeogenesis

c) HMP shunt

d) Citric acid cycle

Correct Answer - D

Ans. is 'd' i.e., Citric acid cycle

- Citric acid cycle or Krebs's cycle generates 10 ATPs for every acetyl CoA that enters into citric acid cycle, Aerobic glycolysis generates 7 ATPs for every molecule of glucose, Anaerobic glycolysis generates 2 ATPs for every molecule of glucose utilised, HMP shunt is a pathway which neither generates ATP nor utilises ATP.

179. Source of ATP in RBCs is ?

a) Glucose

b) Fatty acid

c) Aminoacid

d) Ketone body

Correct Answer - A

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

- RBCs don't have mitochondria., The only pathway that provides ATP even in anaerobic conditions is glycolysis.
- Oxidation of reducing equivalents in the respiratory chain is coupled with phosphorylation of ADP to ATP.
- *This is the most important mechanism for capturing the energy present in various nutrients.*

180. What is the inhibitor of Carnitine Palmitoyl Transferase-1 [CPT-1]?

a) ATP

b) Acetoacetate

c) Succinyl CoA

d) Acyl CoA

Correct Answer - A

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

[Ref Harper 30th le p. 186]

- As CPT-1 is an enzyme catalyzing a catabolic process (produces ATP), it is stimulated by anything which signals low energy like : ADP, NAD, FAD, Glucagon (catabolic hormone), Acyl CoA (the substrate)

181. Omega three fatty acid is?

a) Linoleic acid

b) Arachidonic acid

c) Cervonic acid

d) Oleic acid

Correct Answer - C

Ans. is 'c' i.e., Cervonic acid [*Ref Harper 30th le p. 214*]

182. Which 2 additional enzymes required in Beta Oxidation of PUFA?

a) Dienoyl CoA isomerase and Enoyl CoA reductase

b) Dienoyl CoA isomerase and Dienoyl CoA reductase

c) Enoyl CoA racemase and Enoyl CoA reductase

d) Enoyl CoA isomerase and 2,4 Dienoyl CoA reductase

Correct Answer - D

Ans. is 'd' i.e., Enoyl CoA isomerase and 2,4 Dienoyl CoA reductase

- Saturated Fatty acid oxidation begins with acyl CoA dehydrogenase acting on a fatty acid.
- Unsaturated fatty acid that is undergoing oxidation has a cis 43 bond, then Enoyl CoA isomerase converts into trans - 42 bond.
- For oxidation of saturated fatty acids, the enzymes required are Carnitine Acyl Palmitoyl Transferase I, Carnitine Acyl Palmitoyl Transferase II, Acyl CoA dehydrogenase, Hydrap hydroacyl coA dehydrogenase.

183. Carnitine shuttle is involved in ?

a) Fatty acid synthesis

b) Fatty acid oxidation

c) Cholesterol synthesis

d) Bile acid synthesis

Correct Answer - B

Ans. is 'b' i.e., Fatty acid oxidation

- Very short chain, short chain, medium chain and long chain fatty acids get oxidized in mitochondria,
- Very short chain, short chain and medium chain fatty acids can cross inner mitochondrial membrane by passive diffusion,
- Long chain fatty acids cannot cross the inner mitochondrial membrane. Hence they need a carrier. The carrier is carnitine.
- Carnitine is p hydroxy y N trimethylaminobutyric acid. It is synthesized from lysine.

184. The effect of Lipotropic agents on fat metabolism is ?

a) Increases the rate of fatty acid synthesis in liver

b) Increases the rate of lipid output from liver

c) Increases the rate of cholesterol synthesis in liver

d) Decreases the rate of cholesterol synthesis in liver

Correct Answer - B

Ans. is 'b' i.e., Increases the rate of lipid output from liver

- Lipotropic agents are substances which increase the rate of lipid output from liver and they also stimulate the rate of lipid utilization in extrahepatic tissues. This way, lipotropic agents protect liver from fatty liver changes and liver cirrhosis.

185. Example for a conjugated protein is ?

a) Heme

b) Chylomicron

c) Albumin

d) Histone

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

186. Intake of high protein diet causes?

a) Increased gluconeogenesis

b) Increased beta oxidation

c) Decreased glycogenolysis

d) Metabolic alkalosis

Correct Answer - A

Ans. is 'a' i.e., Increased gluconeogenesis

- High protein diet is generally recommended for weight loss.
- High protein diet is found to increase the rate of gluconeogenesis. Glucogenic aminoacids in circulation is found to stimulate glucagon release.
- Glucagon stimulates Phosphoenol pyruvate carboxykinase and glucose 6 phosphatase. This way blood glucose is increased and this high blood glucose also has a satiation effect. High protein diet also stimulates glycogenolysis because of its effect on glucagon release.

187. Tyrosine deficiency causes ?

a) Depression

b) Hyperthyroidism

c) Hyperpigmentation

d) Phenylketonuria

Correct Answer - A

Ans. is 'a' i.e., Depression [Ref Essential of biochemistry p. 912]

- Tyrosine deficiency causes *hypothyroidism* (lethargy, weight gain) as tyrosine is required for T3 & T4; *depression* (due to dopamine deficiency); albinism & hair hypopigmentation (due to deficiency of melanin); and stunted growth (as tyrosine is a component of proteins).

188. Hartnup disease is related to ?

a) Rickets symptoms

b) Pellagra symptoms

c) Burning foot syndrome

d) Angular stomatitis

Correct Answer - B

Ans. B. Pellagra symptoms

Hartnup disease

- It is an inherited disorder in the metabolism of tryptophan.
- It is due to defective transport of tryptophan and other neutral amino acids in the intestine and kidney.
- This results in deficiency of tryptophan leading to decreased synthesis of niacin and serotonin.
- Thus there are *pellagra (niacin deficiency)*, *neurological symptoms (serotonin deficiency)* and *amino aciduria* due to defective transport of amino acids in kidney.

189. Oxaloacetate synthesized from which amino acid -

a) Aspartate

b) Glycine

c) Serine

d) Valine

Correct Answer - A

Ans. is 'a' i.e., Aspartate [Ref Harper 30th/e p. 298 & 29th/e p. 274]

- Two most important transamination reactions are catalyzed by alanine transaminase (ALT) and aspartate transaminase (AST).

190. Oxidative deamination is catalyzed by ?

a) Glutaminase

b) Glutamine synthase

c) Glutamate dehydrogenase

d) None of the above

Correct Answer - C

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

191. Replacing alanine by which amino acid will increase UV absorbance of protein at 280nm wavelength?

a) Leucine

b) Proline

c) Arginine

d) Tryptophan

Correct Answer - D

Aromatic amino acids (phenylalanine, tryptophan, and tyrosine) absorb UV light at a maximum of 280 nm because the pi electrons in their aromatic rings can absorb photons.

That is because benzene, the core of a phenyl group, absorbs UV light as well. Amino acids do not absorb visible light and thus are colorless.

However, tyrosine, phenylalanine, and especially tryptophan absorb high-wavelength (250–290 nm) ultraviolet light.

Because it absorbs ultraviolet light about ten times more efficiently than phenylalanine or tyrosine, tryptophan makes the major contribution to the ability of most proteins to absorb light in the region of 280 nm.

Ref: Kennelly P.J., Rodwell V.W. (2011). Chapter 3. Amino Acids & Peptides. In D.A. Bender, K.M. Botham, P.A. Weil, P.J. Kennelly, R.K. Murray, V.W. Rodwell (Eds), Harper's Illustrated Biochemistry, 29e.

192. Which of the following amino acids is involved in one carbon pool?

a) Glycine

b) Proline

c) Threonine

d) Hydroxyproline

Correct Answer - A

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

- Groups, containing a single carbon atom are called one carbon groups. One carbon groups are formed from following amino acids during their metabolism:- *Serine, glycine, histidine and tryptophan*. One carbon groups formed during metabolism are: methyl (CH₃), methylene (CH₂), methenyl (CH), formyl (CHO) and formimino (CH=NH).

193. Disulfide bonds are formed by pairs of which amino acid?

a) Methionine

b) Homocysteine

c) Serine

d) Cysteine

Correct Answer - D

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

There are two sulfur containing amino acids :-

i) Cystein

ii) Methionine

- The side chain of cysteine contains sulfhydryl group that has a pKa of approximately 8.4 for dissociation of its hydrogen sulfhydryl groups of two cystein molecules can form covalent disulfide bond to form cystine.
- Methionine although it contains sulfur group, does not contain sulfhydryl group and cannot form disulfide bond.
- Disulfide bridges are R-S-S-R', These bridges are formed by oxidation of Sulfhydryl groups of cysteine residues of proteins.
- This is the basis or reducing type of SDS - PAGE. SDS PAGE is used to find the molecular weight of an unknown protein.
- Disulfide bridges are not formed by methionine, as methionine does not have sulfhydryl group - they have a thioether linkage

194. Which of the following is true about HPLC and gas chromatography?

a) In Gas Chromatography, the stationary phase is always solid

b) In HPLC, the stationary phase is solid

c) In HPLC, the mobile phase is a liquid or solid

d) In Gas chromatography, the mobile phase is always gas

Correct Answer - D

Ans. is 'd' i.e., In gas chromatography, the mobile phase is always gas

- if a solute has an affinity for the mobile phase, it moves faster. If a solute has an affinity for stationary phase, it gets retarded.
- That way, the solutes get separated based on differential distribution of them between a mobile phase and a stationary phase.

195. Which vitamin deficiency is seen in vegetarians especially ?

a) Vitamin B12

b) Vitamin B6

c) Vitamin B3

d) Vitamin B2

Correct Answer - A

Ans. is 'a' i.e., Vitamin B12

- Dietary sources of vitamin B12 are of animal origin only and include meat, eggs, milk, dairy products, fish, poultry etc. Vitamin B12 is absent in plant foods. Small amount of vitamin B 12 is synthesized in the intestine by the action of intestinal flora.

196. Which amino acid required in infants and not in adults?

a) Histidine

b) Glycine

c) Isoleucine

d) Valine

Correct Answer - A

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

- Histidine and Arginine are partially or semiessential aminoacids. They are synthesized by metabolic pathways but the rate of synthesis is low, that the endogenous synthesis is not sufficient to meet the requirements during periods of increased demand like during growth

197. Reperfusion injury is caused by:

a) Vitamin E

b) Superoxide ion

c) Calcium ion

d) Magnesium ion

Correct Answer - B

B i.e. Superoxide ion

- *Xanthine oxidase increases oxidative stress by generating superoxide free radicals*

- Ischemic reperfusion injury is caused by reactive oxygen species (ROS)/free radical or pro oxidant like superoxide ion

Antioxidants blocking free radical formation include vitamin A (Beta carotene), C and E; superoxide dismutase, catalase and selenium containing glutathione peroxidase enzymes; ceruloplasmin, transferrin, ferritin, and lactoferrin transport proteins etc.

198. Change seen in mitochondria due to aging is?

a) Decrease in size & increase in number

b) Decrease in number & increase in size

c) Decrease in size and number both

d) Increase in size and number both

Correct Answer - C

Answer- C. Decrease in size and number both

Cellular changes-

- Decrease in cell size and number.
- Decreased in size and number of mitochondria Detachment of ribosomes from ER
- Increased number of phagolysosomal vacuoles Defective DNA repair
- Non-enzymatic glycosylation of protien

199. Which of the following is seen in hyperemia?

a) Decreased arteriolar blood flow to the tissue

b) Increased arteriolar blood flow to the tissue

c) Increased venous blood flow in the tissue

d) Decrease venous blood flow in the tissue

Correct Answer - B

Answer- B. Increased arteriolar blood flow to the tissue

- Hyperemia and congestion are the terms used for increased volume of blood within dilated vessels of an organ or tissue.
- Hyperemia is an active process resulting from augmented blood flow to tissue because of arteriolar dilatation, at the site of inflammation or in skeletal muscle during exercise.
- Hyperemia is one of the cardinal signs of inflammation, i.e. redness (rubor) is due to hyperemia.

200. Hypercalcemia in sarcoidosis all are true except?

a) Parathormone level is increased

b) PTHrP level is increased

c) Calcitriol level is increased

d) Oral steroids are useful

Correct Answer - A

Answer- A. Parathormone level is increased

- Extrarenal synthesis of calcitriol [1,25(OH)₂D₃] is central to the pathogenesis of abnormal calcium metabolism in sarcoidosis.
- Sarcoidosis causes an increase in 1, 25-dihydroxy vitamin D, the active metabolite of vitamin D, which is usually hydroxylated within the kidney, but in sarcoidosis patients hydroxylation of vitamin D can occur outside the kidneys, mainly inside the immune cells found in the granulomas and produces 1 alpha, 25(OH)₂D₃, which is the main cause for hypercalcemia in sarcoidosis.
- PTH release is inhibited by hypercalcaemia and high levels of calcitriol, so PTH level is suppressed in sarcoidosis.

201. Toll like receptors are seen on?

a) Macrophages

b) Natural killer cells

c) Endothelial cells

d) All of the above

Correct Answer - D

Answer-D. All of the above

- The Toll-like receptors are membrane proteins that recognize a variety of microbe-derived molecules and stimulate innate immune responses against the microbes.
- The Toll-like receptors are expressed on many different cell types that participate in innate immune responses including ,macrophages, dendritic cells, neutrophils, NKs cells, mucosal epithelial cells and endothelial cells.

202. Which of the following are slow reacting substances of anaphylaxis?

a) LTB₄ and C₄

b) LT A₄ and B₄

c) LT A₄ and C₄

d) LT C₄ and D₄

Correct Answer - D

Answer- D. LT C₄ and D₄

- Slow-reactive substance of anaphylaxis (SRS-A)
- A mixture of the leukotrienes LTC₄, LTD₄ and LTE₄ are called slow reacting substances of anaphylaxis (SRS-A).
- These are the most potent mediators causing bronchospasm.
- They are produced via lipoxygenase pathway (LOX pathway) of arachidonic acid metabolism during inflammation.

203. Changes in which amyloid structure makes it insoluble?

a) Primary

b) Secondary

c) Tertiary

d) Quaternary

Correct Answer - B

Answer-B. Secondary

Amyloid is a protein that has an alteration in its secondary structure which imparts it a particular insoluble form, called the beta-pleated sheet conformation.

204. Hyperacute rejection occurs most commonly in which organ:
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a) Liver

b) Kidney

c) Lung

d) Heart

Correct Answer - B

Ans. B: Kidney

Hyperacute rejection is a complement-mediated response in recipients with pre-existing antibodies to the donor (for example, ABO blood type antibodies).

Hyperacute rejection occurs within minutes and the transplant must be immediately removed to prevent a severe systemic inflammatory response. Rapid agglutination of the blood occurs.

This is a particular risk in kidney transplants, and so a prospective cytotoxic crossmatch is performed prior to kidney transplantation to ensure that antibodies to the donor are not present.

Hyperacute rejection is analogous to a blood transfusion reaction as it is a humoral-mediated immune response. For other organs, hyperacute rejection is prevented by transplanting only ABO-compatible grafts.

Hyperacute rejection is not significant in liver allografts and cellular transplants because these tissues have remarkable regenerative abilities.

Hyperacute rejection is the outcome of xenotransplanted organ in non-immunosuppressed recipients

205. In acute solid organ Graft vs host disease, which of the following is not seen?

a) Occurs within 100 days of transplantation

b) Skin is the most common organ involved

c) Preformed antibodies are involved

d) May lead to cholestatic jaundice

Correct Answer - C

Answer- C. Preformed antibodies are involved

- Preformed antibodies are involved in hyperacute rejection not in GVHD.
- Acute GVHD occurs within 100 days (usually 10-50 days) of bone marrow transplantation.

206. Which of the following organ can cause antigen reaction when exposed in self blood?

a) Kidney

b) Liver

c) Eye lens

d) Platelets

Correct Answer - C

Answer- C. Eye lens

Antigen Sequestration

- Some self reactive lymphocytes cannot react against the host cells because these cells or antigens are located in the tissues which do not communicate with blood & interact with immune system during development.
- These sites are called immune privileged sites, because it is difficult to induce immune response to antigen in these sites.
- These are treated as foreign when introduced into circulation and they elicit both humoral and cellular response.

Examples of such sites are

1. Eye - lens and uvea
2. Testis - sperms
3. Brain

207. Which of the following is not an extra articular feature of Rheumatoid arthritis?

a) Weight loss

b) Pleural effusion

c) Conjunctivitis

d) Proteinuria

Correct Answer - D

Answer- D. Proteinuria

Extra-articular manifestations in RA

1. Systemic manifestations: Fever, weight loss, fatigue.
2. Dermatological: Subcutaneous nodule.
3. Cardio-pulmonary: Pericardial & pleural effusion, constrictive pericarditis, pulmonary fibrosis, lung nodules.
4. Eye : Sjogren syndrome (Keratoconjunctivitis sicca), scleritis.
5. Nervous : Carpal tunnel syndrome, tarsal tunnel syndrome, mononeuritis multiplex

208. Genetic association of Diabetes?

a) MHC

b) VHL

c) CTLA4

d) PDGF-R

Correct Answer - C

Answer- C. CTLA4

Type I Diabetes

- CTLA4 (cytotoxic T lymphocyte-associated 4)- 2q31 -35

209. Acrodermatitis enteropathica is inherited as?

a) X-linked recessive

b) X-linked dominant

c) Autosomal recessive

d) Autosomal dominant

Correct Answer - C

Answer- C. Autosomal recessive

Acrodermatitis enteropathica is inherited as an autosomal recessive disorder.

- Cystic fibrosis
- Phenylketonuria
- Galactosemia
- Homocystinuria
- Lysosomal storage disease.
- alpha 1-antitrypsin deficiency
- Wilson disease
- Hemochromatosis
- Glycogen storage disorders
- Acrodermatitis enteropathica

210. Which of the following conditions is associated with decreased E-cadherin?

a) Invasive lobular carcinoma

b) Fibroid

c) Ductal carcinoma

d) Intestinal carcinoma

Correct Answer - A

Answer- A. Invasive lobular carcinoma

- Cadherin-E (E-cadherin) is a protein that is encoded by the CDH1 gene (tumor suppressor gene).
- Loss of E-cadherin function or expression has been implicated in cancer progression and metastasis.
- E-cadherin down regulation decreases the strength of cellular adhesion within a tissue, resulting in an increase in cellular motility. This in turn may allow cancer cells to cross the basement membrane and invade surrounding tissues. E-cadherin is also involved in causation of breast cancer.
- When compared with invasive ductal carcinoma" E-cadherin expression is markedly reduced or absent in the great majority of invasive lobular carcinomas.

211. Tumor suppressor gene p53 prevents carcinoma by?

a) DNA repair

b) Cell cycle arrest

c) Apoptosis induction

d) All of the above

Correct Answer - D

Answer- D. All of the above

- p53 gene is located on chromosome 17 & acts as molecular policeman that prevents the propagation of genetically damaged cell.
 - p53 gene product, i.e. p53 protein is a DNA binding protein in the nucleus, when called into action, it controls the transcription of several other genes.
- p53 causes:-**
1. Cell cycle arrest: p-53 induces transcription of p21, a CDK inhibitor. p21 inhibits cyclin D/CDK-4 complex and there is arrest of cell cycle late in G1 phase. This allows time for DNA repair.
 2. DNA repair : p-53 also helps in DNA repair directly by inducing transcription of GADD 45 (growth arrest and DNA damage).
- p53 induces apoptosis by inducing the activation of apoptosis inducing gene.

212. What is the position of vegetation on heart valve caused due to non bacterial thrombotic endocarditis?

a) Pocket of valves

b) Upper surface of cusps

c) Lower surface of cusps

d) Along the line of closure

Correct Answer - D

Answer- D. Along the line of closure

In NBTE, vegetations occur along the line of closure.

213. Normal PCV value is?

a) 30-35%

b) 40-45%

c) 50-55%

d) 60-65%

Correct Answer - B

Answer-B. 40-45%

- Normal values are about 45% for men and about 42% for women.
- Hematocrit or Packed cell volume (PCV)
- It is the proportion of blood volume that is occupied by red blood cells.

214. Which neoplasm causes pure red cell aplasia?

a) Thymus

b) Breast

c) Hepatocellular

d) Bronchogenic

Correct Answer - A

Answer-A. Thymus

Pure red cell aplasia (PRCA) is an uncommon disorder in which maturation arrest occurs in the formation of erythrocytes.

Causes of PRCA include:

- Idiopathic
- Autoimmune disease such as SLE
- Lymphoproliferative. Association of pure red cell aplasia with T-cell large granular lymphocyte leukemia is well recognized, especially in China
- Thymoma
- viral infections such as HIV, herpes, parvovirus B19 (Fifth disease), or hepatitis
- Drugs such as mycophenolic acid or erythropoietin
- Congenital (Diamond-Blackfan anemia)

215. Castleman's disease is associated with?

a) Necrotizing vasculitis

b) Benign lymphoid hyperplasia

c) Necrotizing lymphadenitis

d) Coagulation defect

Correct Answer - B

Answer- B. Benign lymphoid hyperplasia

Castleman disease (CD)

- It is a rare benign lymphoproliferative disorder.
- Although Castleman disease is not cancerous, it may also be associated with malignancies such as Kaposi sarcoma, non-Hodgkin lymphoma, Hodgkin lymphoma and POEMS syndrome

216. According to WHO all are B cell lymphomas except?

a) Burkitt's lymphoma

b) Follicular lymphoma

c) Mantle cell lymphoma

d) Anaplastic large cell lymphoma

Correct Answer - D

Answer-D. Anaplastic large cell lymphoma

Peripheral T - Cell and NK - Cell Neoplasms

- T-cell prolymphocytic leukemia
- Large granular lymphocytic leukemia
- Mycosis fungoides/Sezary syndrome
- Peripheral large cell lymphoma, unspecified
- Anaplastic large cell lymphoma
- Enteropathy - associated T - cell lymphoma
- Hepatosplenic gamma delta T - cell lymphoma
- Adult T - cell leukemia / lymphoma
- NK / T - cell lymphoma, nasal type
- NK cell leukemia

217. Hairy leukoplakia is characterized by?

a) Pain

b) EBV infection

c) No association with HIV

d) Pre-cancerous

Correct Answer - B

Answer-B. EBV infection

- It is a condition caused by Epstein-Barr virus (EBV) and occurs usually in persons who are immunocompromised, those with HIV/AIDS.

218. Franklin disease is?

a) heavy chain disease

b) 6-heavy chain disease

c) γ -heavy chain disease

d) μ -heavy chain disease

Correct Answer - C

Answer- C. γ -heavy chain disease

Franklin's disease (gamma heavy chain disease)

- It is a very rare B-cell lymphoplasma cell proliferative disorder.
- It may be associated with autoimmune diseases and infection is a common characteristic of the disease.

219. JAK-2 mutation is strongly associated with?

a) Burkitt's lymphoma

b) Polycythemia vera

c) Multiple myeloma

d) Mantle cell lymphoma

Correct Answer - B

Answer- B. Polycythemia vera

Janus kinase 2 (JAK- 2), a member of the janus kinase family, is a non-receptor tyrosine kinase.

- JAK2 fusions with the TEL(ETV6) (TEL-JAK2) and PCMI have found to be associated with leukemia, particularly clonal eosinophilia forms of the disease.
- JAK-2 mutations are associated with
 - .. Polycythemia vera,
 - ?. Essentialthrombocythemia
 - }. Myelofibrosis (and other myeloproliferative disorders)

220. Lymphoma is caused by all of the following viruses except -

a) HIV

b) EBV

c) HSV

d) HHV8

Correct Answer - C

Answer- C. HSV

- The number of viruses associated with lymphoma has increased over the last 20 years, and includes the Epstein-Barr virus (EBV), human T-cell lymphotropic virus I (HTLVI), human immunodeficiency virus (HIV1 and 2) and human herpesvirus 8 (HHVB).

221. Neutrophil count below which infection is predisposed

a) < 2000

b) < 1500

c) < 1000

d) None

Correct Answer - A

Answer- A. < 2000

- "At neutrophil counts of < 1000/L of blood, individuals are at risk from infection (with the risk of infection inversely proportional to the neutrophil count.

222. Central bronchiectasis is seen with

a) Cystic Adenomatoid Malformation

b) Cystic fibrosis

c) Broncho carcinoma

d) Tuberculosis

Correct Answer - B

Ans. is 'b' i.e., Cystic fibrosis

The distribution of bronchiectasis may be important diagnostically

A central → Perihilar

allergic bronchopulmonary aspergillosis.

Predominant upper lobe or Middle and lower lobe → Cystic

fibrosis or one of its variants. Distribution is consistent with PCD

Lower lobe involvement is → Middle lobe and lingular segment of

the LUL involvement is characteristic of non tuberculous

mycobacteria (NTM). Idiopathic bronchiectasis

223. Gene NPHP1 encodes?

a) Fibrocystin

b) Nephrocystin

c) Polycystin

d) Podocin

Correct Answer - B

Answer- B. Nephrocystin

- Nephrocystin-I is a protein that in humans is encoded by the NPHP1 gene on chromosome 2q. The protein is known to play a role in functioning of cilia. Mutations in this gene cause familial juvenile nephronophthisis, a medullary cystic kidney disease. It is a form of ciliopathy.

224. Most common cause of renal tumor in adult is?

a) Family history

b) Smoking

c) Obesity

d) Hypertension

Correct Answer - B

Answer- B. Smoking

- Important risk factors for RCC are smoking (most significant), obesity, hypertension, asbestos exposure, estrogen therapy, CRF, tuberous sclerosis and familial conditions (Von Hippel-Lindau syndrome).

225. Renal angiomyolipoma is associated with:

a) Tuberous sclerosis

b) Neurofibromatosis 1

c) Neurofibromatosis 2

d) All of the above

Correct Answer - A

Angiomyolipomas are present in 25% to 50% of patients with tuberous sclerosis, a disease caused by loss-of-function mutations in the **TSC1 or TSC2 tumor suppressor genes**.

This is a benign tumor consisting of vessels, smooth muscle, and fat.

It is characterized by lesions of the cerebral cortex that produce epilepsy and mental retardation, a variety of skin abnormalities, and unusual benign tumors at other sites, such as the heart.

Ref: Robbins 8th edition Chapter 20.

226. Pathology in achalasia cardia is in?

a) Excitatory neurons

b) Inhibitory neurons

c) Muscles

d) Neuromuscular junction

Correct Answer - B

Answer-B. Inhibitory neurons

- It is due to dysfunction of inhibitory neurons containing nitric oxide and vasoactive intestinal polypeptide in the distal esophagus. The cholinergic innervation of the LES is intact or affected only in the advanced stage.
- There is neurogenic degeneration either idiopathic or due to infection.

227. True about familial adenomatous polyposis is?

- a) Also known as Lynch syndrome
- b) FAP gene is located on 5p21
- c) 100% risk of malignancy in classical variety
- d) Males are usual carriers

Correct Answer - C

Answer- C. 100% risk of malignancy in classical variety

- Familial polyposis coli is an autosomal dominant condition affecting males and females equally
- It is also called as familial polyposis coli. It is caused by mutation in adenomatous polyposis coli gene located on long arm of chromosome 5 (5q21).

228. Multiple ileal strictures and internal fistulas are features of

a) Intestinal TB

b) Crohn's, disease

c) Ulcerative colitis

d) Diverticulosis

Correct Answer - B

Answer-B. Crohn's, disease

- Crohn's disease complicated by multiple strictures and internal fistulas.

229. Low dietary fiber intake is related to which carcinoma?

a) Breast

b) Lung

c) Kidney

d) Colon

Correct Answer - D

Answer- D. Colon

- Low fibre diet
- High
- Intake of animal fat
- Smoking and alcohol
- Streptococcus bovis septicemia/ endocarditis
- Ureterosigmoidoscopy
- Inflammatory bowel disease (ulcerative colitis)
- Acromegaly
- Pelvic irradiation
- High calorie intake and obesity

230. All of the following are true about primary biliary cirrhosis except?

a) Portal fibrosis

b) Anti-mitochondrial antibodies

c) Elevated cholesterol level

d) Decreased lipoprotein X level

Correct Answer - D

Answer- D. Decreased lipoprotein X level

- Primary biliary cirrhosis is associated with elevated lipoprotein-X (lipoprotein-X is elevated in conditions causing cholestasis).

231. Most common cancer in liver is

a) Papilloma

b) Hepatic adenoma

c) Metastasis

d) Cavernous Hemangioma

Correct Answer - C

Answer- C. Metastasis

- Most common hepatic neoplasm is metastasis.
- Most common primary benign lesion of liver is cavernous hemangioma.
- Most common primary malignant lesion of liver is hepatocellular carcinoma.
- Most common primary hepatic tumor of children is hepatoblastoma.

232. Vanishing bile duct syndrome is seen in?

a) Primary sclerosing Cholangitis

b) Primary biliary cirrhosis

c) Cystic fibrosis

d) All of the above

Correct Answer - D

Answer-D. All of the above

- vanishing bile duct syndrome refers to a group of disorders resulting in destruction/disappearance of the intrahepatic bile ducts and, ultimately, cholestasis.
- Causes
- Cystic fibrosis
- Intrahepatic bile duct atresia
- Caroli's disease
- Primary sclerosing Cholangitis
- Primary biliary cirrhosis
- Hodgkin's lymphoma

233. Her2/neu gene is on which chromosome?

a) 13

b) 14

c) 15

d) 17

Correct Answer - D

Answer- D. 17

- ERBB2, a known proto-oncogene, located at the long arm of human chromosome 17 (17q12)
- HER2 is a member of the human epidermal growth factor receptor (HER/EGFR/ERBB) which is plasma membrane-bound receptor tyrosine kinase.

234. Hirano bodies seen in?

a) Rabbits

b) Alzheimer's disease

c) Pick's disease

d) Viral encephalitis

Correct Answer - B

Answer-B. Alzheimer's disease

- They are intracellular, paracrystalline, eosinophilic structures often occurring as rod shapes in the neurons of individuals with neurodegenerative diseases including Alzheimer's and some forms of Creutzfeldt-Jacob disease. They are intracellular aggregates of actin and actin-associated proteins.

235. Which tumor arises from organ of Zuckerkandl?

a) Paraganglioma

b) Schwannoma

c) Astrocytoma

d) Medulloblastoma

Correct Answer - A

Answer- A. Paraganglioma

- The organ of Zuckerkandl is a chromaffin body derived from neural crest located at the bifurcation of the aorta or at the origin of the inferior mesenteric artery. It can be the source of paraganglioma.

236. Which is the nerve sheath tumor according to WHO?

a) Schwannoma

b) Paraganglioma

c) Medulloblastoma

d) Astrocytoma

Correct Answer - A

Answer- A. Schwannoma

Schwannomas are benign tumors of the nerve sheath

- Schwannomas can arise from any peripheral nerve containing Schwann cell, including cranial nerves
- The eighth cranial nerve is the most susceptible to schwannomas. Bilateral schwannomas of the eighth cranial nerve indicate the presence of type 2 neurofibromatosis.

237. Transfusion associated graft vs host disease can be prevented by?

a) Irradiation

b) Washing

c) Chemical treatment

d) All of the above

Correct Answer - A

Answer- A. Irradiation

Transfusion-associated graft -versus-host disease (TA-GvHD)

- A rare complication of blood transfusion, in which the donor T lymphocytes mount an immune response against the recipient's lymphoid tissue.
- The only currently effective method to prevent TA-GVHD is gamma irradiation of blood products prior to transfusion

238. Bronchopulmonary aspergillosis is associated with?

a) Kertagener syndrome

b) Cystic fibrosis

c) Good Pasture syndrome

d) Silicosis

Correct Answer - B

Answer- B. Cystic fibrosis

- Allergic bronchopulmonary aspergillosis (ABPA) is a condition characterized by a hypersensitivity response to the
- Aspergillus (most commonly *Aspergillus fumigatus*). It occurs most often in patients with asthma or cystic fibrosis
- ABPA causes airway inflammation, leading to bronchiectasis—a condition marked by abnormal dilation of the bronchi and bronchioles.

239. Focal length of high power objective lens of microscope?

a) 40mm

b) 16mm

c) 20mm

d) 4mm

Correct Answer - D
Answer- D. 4mm
Approximate focal length-4mm

240. Therapeutic drug monitoring is used for all except?

a) Drugs with low safety margin

b) In case of poisoning

c) To check patient compliance

d) To check the therapeutic effects of drug

Correct Answer - D

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

Therapeutic drug monitoring is Particularly useful in following situations:

I. Drugswith lowsafetymargin -

- Tricyclic antidepressants
- Digoxin
- Anticonvulsants
- Antiarrhythmics
- Theophylline
- Aminoglycoside antibiotics
- Lithium

241. Which of the following is an example of idiosyncratic reaction?

a) Captopril - dry cough

b) Isoniazid - hepatitis

c) Haloperidol - extrapyramidal side effects

d) Chloramphenicol - aplastic anemia

Correct Answer - D

Ans. is'd'i.e., Chloramphenicol - aPlastic anemia

(Ref: KDT P/e p. 851)

Idiosyncratic reactions e.g.:

1. Barbiturates cause excitement and mental confusion in some individuals.
2. Quinine/quinidine cause cramps, diarrhoea, purpura, asthma and vascular collapse in some patients.
3. Chloramphenicol produces non dose-related serious aplastic anaemia in rare individuals.

242. Intolerance to a drug occurs at what dose in an individual ?

a) Subtherapeutic dose

b) Therapeutic dose

c) Toxic dose

d) Not related to the dose of drug

Correct Answer - B

Ans. is'b'i.e., Therapeutic dose

[ReIKDT . 851]

Intolerance

- It is the appearance of characteristic toxic effects of drug in an individual at therapeutic doses.
- Converse of tolerance and indicates a low threshold of the individual to the action of a drug.

243. Which of the following acts as 'Gatekeeper' in the GIT ?

a) ATP binding cassette [ABC] transporter

b) P₁glycoprotein transporter

c) OAT 1 & OAT2

d) All of the above

Correct Answer - A

Ans. is'a.i.e., ATP binding cassette (ABC) transporter

(Ref [www, ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov))

- MDRI (ABCB1) MRP2 (ABCC2) and BCRP (ABCG2) are members of the family of ATP binding cassette (ABC) transporters.
- These are plasma membrane transporters that are expressed in various organs.
- The role of MDRI and MRP2 in the hepatobiliary system is well defined
- The role of ABCG2, which is also expressed in the canalicular membrane of hepatocytes
- has not yet been fully characterised.
- All three proteins are also expressed in the apical membrane of enterocytes where they probably control oral availability of many substances.
- This important ``gatekeeper" function of ABC transporters has been recognised recently and is currently under further investigation.

244. Which of the following phenomenon can be explained with pharmacogenomics ?

- a) More chances of irinotecan induced neutropenia and diarrhea in some patients
- b) Acute intermittent porphyria precipitated by barbiturates
- c) Increased risk of severe bone marrow toxicity with 6 mercaptopurine
- d) Nephrotoxicity by cyclosporine

Correct Answer - A:B:C

Ans. is 'a' i.e., More chances of irinotecan induced neutropenia and diarrhea in some patients; .b, i.e., Acute Intermittent porphyria precipitated by barbiturates; & 'c' i.e., increased risk of severe bone marrow toxicity with 6 mercaptopurine

[Ref: KDT)

Pharmacogenomics

- Pharmacogenomics is the use of genetic information to guide the choice of drug and dose on an individual basis.
- It intends to identify individuals who are either more likely or less likely to respond to a drug, as well as those who require altered dose of certain drugs.

245. Which of the following drugs belong to category X risk category for the use in pregnancy?

a) Penicillin V

b) Thiopentone

c) Aspirin

d) Isotretinoin

Correct Answer - D

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

[Ref KDT //e p. 70)

- Category X drugs have proven fetal abnormalities and are teratogenic.
- **Eg:** Estrogens, isotretinoin, ergometnne thalidomide

246. Renal dose of dopamine is-

a) 2.5 lig/kg/min

b) 5-10 μ g/kg/min

c) 10-20 pg/kg/min

d) 1-2 pg/kg/min

Correct Answer - D

Ans. is 'd' i.e., 1-2 μ g/kg/min

Dopamine produces dose dependent action:

i) At low dose (1-2 μ g/kg/min) causes dilation of renal and mesenteric vessels often referred as renal dose.

ii) At moderately high dose (2-10 μ g/kg/min) produces a positive inotropic effect by stimulating β_1 receptor on heart cardiac dose.

iii) At high doses (> 10 μ g/kg/min) produces vasoconstriction by stimulating α_1 receptors --> vascular dose.

247. Ivabradine is used for management of ?

a) Stable angina

b) Pre renal azotemia

c) Alzheimers disease

d) Anti smoking agent

Correct Answer - A

Ans. is 'a' i.e., Stable angina

(Ref: KDT Vh/e p. 554; Cardiac drug development guide by Micheal Pugsley p. 381)

Ivabradine

- It is an investigational inhibitor of sino-atrial node.
- It is a relatively selective I_f (funny current) Sodium channel blocker of early part of slow diastolic depolarization (phase 4) that reduces heart rate by inhibiting the hyperpolarization-activated sodium channel in SA node.
- Heart rate is a major determinant of angina in coronary disease.
- Therefore, lowering the heart rate is an important therapeutic approach in the treatment of stable angina.

248. Beta blocker with d isomer responsible for beta blocker action is ?

a) Nebivolol

b) Timolol

c) Esmolol

d) Propranolol

Correct Answer - A

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

Nebivolol is a novel beta-blocker with a greater degree of selectivity for beta₁-adrenergic receptors than other agents in this class and a nitric oxide (NO)-potentiating, vasodilatory effect that is unique among beta-blockers currently available to clinicians. Nebivolol is a racemic mixture with beta-blocker activity residing in the d-isomer; in contrast, l-nebivolol is far more potent in facilitating NO release.

Note :

- Beta blockers with 1 isomer having beta blocking activity are :?
- Propranolol, atenolol, metoprolol, esmolol, timolol

249. Mechanism of action trimetazidine is ?

a) Fatty acid synthase inhibitor

b) Na channel inhibitor

c) K channel opener

d) Inhibiting mitochondrial LC3-KAT

Correct Answer - D

Ans. is'd'i.e.,Inhibiting mitochondrial LC3-KAT

(Ref: KDTh/e p. 554)

Trimetazidine:

- This antianginal drug acts by non hemodynamic mechanisms.
- The mechanism of action of trimetazidine is uncertain, but it may improve cellular tolerance to ischaemia by inhibiting mitochondrial long chain 3-ketoacyl-CoA thiolase (LC3-KAT) a key enzyme in fatty acid oxidation- thereby reducing fatty acid metabolism and increasing glucose metabolism in myocardium.

250. Which antianginal drug can be safely used with drugs used for treatment of erectile dysfunction?

a) Nitrates

b) Calcium channel blockers

c) pFOX inhibitor

d) Potassium channel opener

Correct Answer - C

Ans. is 'c' i.e., pFOX inhibitor

[Ref: KDT Vh/e p. 5541]

- The metabolic modulators (eg, trimetazidine) are known as pFOX inhibitors because they partially inhibit fatty acid oxidation pathway in myocardium.
- Antianginal action of trimetazidine is independent of any blood pressure reduction.
- It can be effectively used as an antianginal drug in the CAD patients with erectile dysfunction in the place of nitrates to allow free use of sildenafil and similar agents.

251. Drug used for euvolemic hyponatremia in patient with advanced congestive heart failure is ?

a) Tolvaptan

b) Nesiritide

c) Hydrocortisone

d) Metoprolol

Correct Answer - A

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

[Ref: KDT 7/e p. 5251]

- The most common cause of euvolemic hyponatremia in SIADH (syndrome of inappropriate secretion of antidiuretic hormone).
- Thus the question is asking about the drug for SIADH in patients with cardiac failure.

Tolvaptan

- This is an orally active nonpeptide vasopressin V2 receptor antagonist introduced recently for the correction of water retention and hyponatremia occurring in syndrome of inappropriate ADH secretion (SIADH) as well as in advanced CHF.
- In clinical trials on CHF patients with hyponatremia, tolvaptan has afforded short-term improvement by increasing water excretion, restoring serum Na⁺ and relieving dyspnoea.
- However, no long-term benefits have been noted.

252. Which of the following drugs can be used for secondary prevention of coronary artery disease?

a) Gemfibrozil

b) Colestipol

c) Temisartan

d) Vitamin E

Correct Answer - A

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

[Ref: KDT Vh/e p. 639]

Gemfibrozil

- This fibric acid derivative effectively lowers plasma TG level by enhancing breakdown and suppressing hepatic synthesis of TGs.
- Besides high efficacy in type III hyperlipoproteinemia, gemfibrozil has shown action in subjects with raised blood CH in addition.
- In the 'Helsinki Heart Study' men without known CAD treated with gemfibrozil had a 34% reduction in fatal and nonfatal MI, though overall mortality was not affected.
- That these benefits extend to secondary prevention of coronary events in men with existing CAD and low HDL CH, has been demonstrated in another trial.

253. Drug used in treatment of peripheral vascular disease which acts by increasing flexibility of RBC membrane and increasing micro circulation?

a) Cycloandelate

b) Xanhinol nicotinate

c) Pentoxiphylline

d) Cilostazole

Correct Answer - C

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

(Ref: KDT Vh/e p. 555)

Pentoxifylline (Oxpentiffline)

- An analogue of theophylline and a weak phosphodiesterase (PDE) inhibitor, it has been shown to increase blood flow in ischaemic areas by reducing whole blood viscosity and by improving flexibility of RBCs.
- Pentoxifylline is mainly used in intermittent claudication (calf pain on walking) due to occlusive vascular disease (Buerger's disease); walking distance is increased.
- Other conditions claimed to be improved are: trophic leg ulcers, transient ischaemic attacks (TIAs), non haemorrhagic stroke, and chronic cerebrovascular insufficiency.
- However, overall benefits are modest and restricted to a fraction of patients

254. Which drug/s is/ are used to control hypertension intra operatively?

a) Nitroglycerine

b) Nitroprusside

c) Beta blockers

d) All the above

Correct Answer - D

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

- [Rel Hypertension primer by Joseph L. Izzo, p. 555J]
- **Intraoperative hypertension**
- Measures commonly used to control intraoperative hypertension include deepening of anesthesia, use of vasodilators such as nitroglycerine or nitroprusside, or a combination of the two.

255. Overall action of caffeine on heart rate is ?

a) Increases

b) Decreases

c) No effect

d) First increases then decreases

Correct Answer - B

Ans. is 'b' i.e., Decreases (Ref: KDT Vh/e P. 4881)

Caffeine

- Caffeine out of the three naturally occurring methylxanthines, only caffeine is used as a CNS stimulant.
- Methylxanthines directly stimulate the heart and increase force of myocardial contractions.
- They tend to increase heart rate by cardiac action, but decrease it by causing vagal stimulation- net effect is variable.
- Tachycardia is more common with theophylline, but caffeine generally lowers heart rate.

256. Which of the following is a potassium sparing drug:

September 2005, March 2013

a) Indapamide

b) Frusemide

c) Spironolactone

d) Mannitol

Correct Answer - C

Ans. C: Spironolactone

Potassium-sparing diuretics do not promote the secretion of potassium into the urine; thus, potassium is spared and not lost as much as in other diuretics. The term "potassium-sparing" refers to an effect rather than a mechanism or location; nonetheless, the term almost always refers to two specific classes that have their effect at similar locations:

- Aldosterone antagonists: Spironolactone, which is a competitive antagonist of aldosterone. Aldosterone normally adds sodium channels in the principal cells of the collecting duct and late distal tubule of the nephron. Spironolactone prevents aldosterone from entering the principal cells, preventing sodium reabsorption. A similar agent is potassium canreonate.
- Epithelial sodium channel blockers: amiloride and triamterene.

257. Which drug abolishes corticomedullary osmotic gradient ?

a) Furosemide

b) Thiazide

c) Spironolactone

d) Triamterene

Correct Answer - A

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

(Ref. KDT p. 579)

- Furosemide (Frusemide)
- It is a high ceiling (loop) diuretic which inhibits of $\text{Na}^+-\text{K}^+-2\text{Cl}^-$ cotransporter.
- The corticomedullary osmotic gradient is abolished and positive as well as negative free water clearance is blocked.
- K^+ excretion is increased mainly due to high Na^+ load reaching DT.

258. Thiazides and loop diuretics both have opposite action on which of the following ions ?

a) Sodium

b) Potassium

c) Calcium

d) Chloride

Correct Answer - C

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

(Ref: KDT 7/e p. 5S2I)

- Furosemide action on calcium
- Furosemide increases Ca^{2+} excretion (contrast thiazides which reduce it)

259. In a 2 months old infant undergoing surgery for biliary atresia, you would avoid one of the following anaesthetic

a) Thiopentone

b) Halothane

c) Propofol.

d) Sevoflurane

Correct Answer - B

B i.e. Halothane

Among all these options only *halothane is hepatotoxic* so it should be avoided Lets revise some important facts.

- All coagulation factors with *exception of factor VIII (8) & von wille brand factor* are produced by *liver*
- *Vit K* is necessary for synthesis of *prothrombin (factor II) and factor VII, IX and X*.
- *PT* is normally *11-14 seconds*, measures the activity of *fibrinogen, prothrombin and factors, V, VII, and X*
- All opioids cause spasm of sphincter of oddi & increase biliary pressure
- Halothane hepatitis is more common in middle age, obese, female sex, and a repeated exposure (esp with in 28 days)

260. Opioid available as nasal spray formulation is ?

a) Tramadol

b) Codiene

c) Butorphanol

d) Buprenorphine

Correct Answer - C

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

[Ref: KDT 7h/e p. 482)

- Butorphanol - Nasal spray (Stadol)

261. Which of the following belongs to NaSSA group of drugs?

a) Amoxetine

b) Mirtazapine

c) Duloxetine

d) Venlafaxine

Correct Answer - B

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

(Ref: Depression and Bipolar disorder, Stahl's essential psychopharmacology 3'd/e p. 1111)

Noradrenergic and specific serotonergic antidepressants , (NaSSAs):

- They are a class of psychiatric drugs used primarily as antidepressants'

The NaSSAs include the following agents

- Aptazapine
- Mirtazapine
- Esmirtazapine
- Setiptiline/teciptiline
- Mianserin

262. Which of the following drugs can be used as a transcranial patch for treatment of parkinsonism?

a) Levodopa

b) Rotigotine

c) Apomorphine

d) Aprantine

Correct Answer - B

Ans 'b' i.e. Rotigotine

o Rotigotine is intended to be delivered through *transdermal patches*, so as to ensure a slow and constant dosage in a 24-hour period.

263. Most toxic antiepileptic drug is ?

a) Phenytoin

b) Valproate

c) Carbamazepine

d) Lamotrigine

Correct Answer - C

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

(Ref: www.sciencedirect.com).

- Table in a pubmed indexed journal, regarding toxicity of anticonvulsant drugs shows answer is carbamazepine.
- 40.0 % toxicity.

264. Ziconotide acts by blocking ?

a) Voltage gated Na channel

b) Voltage gated Ca channel

c) Ligand gated Na channel

d) Ligand gated Ca channel

Correct Answer - B

Ans. is'b'i.e., Voltage gated Ca channel

(Ref: Essential of pain medicine by HonorioBenmn p. 4581)

Ziconotide:

- Ziconotide (SNX-111 ; Prialt) is an atypical analgesic agent for the amelioration of severe and chronic pain.
- Acts as a selective N-type voltage-gated calcium channel blocker.

265. Which of the following drug causes hirsutism?

a) Phenytoin

b) Valproate

c) Carbamazepine

d) Phenobarbitone

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

266. Neuromuscular blockade produced by rocuronium can be reversed by ?

a) Sugammadex

b) Flumazenil

c) Blood transfusion

d) Plasmapheresis

Correct Answer - A

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

(Ref: Miller Eh/e p. 995)

Sugammadex:

- Sugammadex is a modified γ -cyclodextrin that shows a high affinity for the steroidal NMBDs rocuronium and vecuronium.
- Sugammadex is able to form a tight inclusion complex with either of these steroidal NMBDs, thereby inactivating the effects of rocuronium and vecuronium, resulting in rapid reversal of neuromuscular blockade.

267. Dose of methotrexate for treatment of rheumatoid arthritis is ?

a) 7.5 - 15 mg/ week

b) 2.5 - 5 mg/ week

c) 7.5 - 15 mg/ month

d) 2.5 - 5 mg/ month

Correct Answer - A

Ans. is'a' i.e., 7.5 - 15 mg/ week

[Ref: KDT Vh/e p. 21 1]

Methotrexate (Mtx) for rheumatoid arthritis:

- Induction of oral low-dose (7.5-15 mg) weekly Mk regimen has improved acceptability of this drug in RA.

268. Pegloticase is used in ?

a) Gout

b) Osteoarthritis

c) Rheumatoid arthritis

d) Reactive arthritis

Correct Answer - A

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

[Rel Gout and other crystal arthropathies by Robert Terkeltaud p. 19]

Pegloticase:

- Pegloticase is a medication for the treatment of severe, treatment of refractory chronic gout.
- It is a third line treatment in those in whom other treatments are not tolerated.

269. Which drug can exacerbate asthma secondary to irreversible nonselective inhibition of cyclooxygenase pathway?

a) Aspirin

b) Ibuprofen

c) Ketorolac

d) Celecoxib

Correct Answer - A

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

(Ref: KDT Vh/e p. 192, 195).

Aspirin Induced Asthma

- The disorder is thought to be caused by an anomaly in the arachidonic acid metabolizing cascade which leads to increased production of proinflammatory cysteinyl leukotrienes, a series of chemicals involved in the body's inflammatory response.
- When medications like NSAIDs or aspirin block the COX-I enzyme, Production of thromboxane and some anti-inflammatory prostaglandins is decreased, and in patients with aspirin-induced asthma this results in the overproduction Of pro-inflammatory leukotrienes to causes severe exacerbations of asthma and allergy like symptoms.

270. Which of the following is a feature of nonselective Cox inhibitor but not of selective Cox 2 inhibitor?

a) Analgesic effect

b) Antiplatelet aggregatory

c) Renal salt/ water retention

d) Prolongation of labour

Correct Answer - B

Ans. is'b'i.e., Antiplatelet aggregatory

(Ref: KDT 7th /e p. 194)

271. Most commonly used NSAIDs in Rheumatic fever ?

a) Indomethacin

b) Phenylbutazone

c) Aspirin

d) Rofecoxib

Correct Answer - C

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

(Ref: Textbook of clinical pediatrics p' 729)

Treatment of Rheumatic fever:

- Drug of choice for treatment of RF is penicillin.
- Erythromycin is the drug of choice in penicillin allergic patient.

Suppressive therapy:

- Corticosteroids or aspirin are given for suppressive therapy. Corticosteroids are indicated in presence of carditis with or without CHF.
- Aspirin is preferred in absence of carditis.
- Duration of therapy is 12 week.

272. Radioiodine is used in treatment of ?

a) Graves disease

b) Hypothyroidism

c) Medullary carcinoma

d) Anaplastic carcinoma

Correct Answer - A

Ans. is 'a' i.e., Graves disease

(Ref: KDT p.255)

- Radioactive iodine is administered as sodium salt of ^{131}I dissolved in water and taken orally.
- The most common indication is hyperthyroidism due to Graves' disease or toxic nodular goiter.
- The average therapeutic dose is 3-6 m curie-calculated on the basis of previous tracer studies and thyroid size.

273. Antidiabetic drug with insulin independent action is ?

a) SGLT2 inhibitor

b) DPP4 inhibitor

c) Meglitinide analogues

d) GLP1 agonist

Correct Answer - A

Ans. is'a'i.e., SGLT 2 inhibitor

(Ref: KDT p.270)

- Sodium-glucose cotransport-2 (SGLT-2) inhibitor: Dapagliflozin - antidiabetic drugs - action independent of insulin

274. Which of the following is true about Repaglinide?

- a) It belongs to sulfonylurea class of drugs
- b) It is not well absorbed on oral administration
- c) It is used to control sleep time hyperglycemia
- d) It should be avoided in patients with liver diseases

Correct Answer - D

Ans. is 'd' i.e., It should be avoided in patients with liver diseases

Ref: KDT 7/e p. 2731

Repaglinide:

- This meglitinide analogue oral hypoglycaemic is designed to normalise mealtime glucose excursions.
- Though not a sulfonylurea, it acts in an analogous manner by binding to SUR closure of ATP dependent K⁺ channels depolarisation insulin release.
- Repaglinide is indicated only in selected type 2 diabetics who suffer pronounced postprandial hyperglycaemia, or to supplement metformin/long-acting insulin.
- It should be avoided in liver disease,

275. Antiinflammatory action of steroid is due to inhibition of

a) Cyclooxygenase

b) Lipoxygenase

c) Phospholipase A2

d) Myeloperoxidase

Correct Answer - C

Ans. is 'c' i.e., Phospholipase A2

(Ref: KDT Vh/e p. 286)

- Glucocorticoids interfere at several steps in the inflammatory response but the most important overall mechanism appears to be limitation of recruitment of inflammatory cells at the local site and production of proinflammatory mediators like PCs, LTs, PAF through inhibition of phospholipase A2

276. Systemic adverse effects of long term inhaled steroids are evident only at doses more than ?

a) 200 mcg/day

b) 400 mcg/day

c) 600 mcg/day

d) 800 mcg/day

Correct Answer - C

Ans. is 'c' i.e., 600 mcg/day.

(Ref: KDT Vhle p. 230)

- Systemic effects of long-term inhaled glucocorticoids are clinically relevant only at doses > 600 mcg/day.
- The significant ones are-mood changes, osteoporosis, growth retardation in children, bruising, petechiae, hyperglycaemia and pituitary-adrenal suppression; several reports of adrenal crisis have appeared, especially in children, during stress (of an infection, etc).

277. Which of the following is a selective progesterone receptor modulator-

a) Onapristone

b) Ulipristal

c) Nomegestrol

d) Toremifene

Correct Answer - B

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

o Ulipristal is a SPRM approved for use as an Emergency Contraceptive.

o SPRM (selective progesterone receptor modulators) : Asoprisnil, ulipristal, onapristone, mifepristone.

278. Which of the following topical steroid used in ophthalmology has the maximum potential to increase intraocular pressure [IOP] ?

a) Hydrocortisone

b) Prednisolone

c) Dexamethasone

d) Fluoromethalone

Correct Answer - C

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

[Rel Essential of ophthalmology p.29]

- The IOP -elevating potential of steroids is as follows:
dexamethasone > prednisolone > fluoromethalone > hydrocortisone > tetrahydrotriamcinalone > medrysone (after 6 weeks of dexamethasone therapy).
- 42% have IOP > 20 mmHg and 69% have IOP > 31).
- The steroids with low IOP - elevating potential are fluorometholone (FMI), rimexolone (Vexol), and loteprednol (Latemas, Mrex).

279. The major adverse effect of glucocorticoids especially in children is ?

a) Hyperkalemia

b) Hypoglycemia

c) Muscular weakness

d) Posterior subcapsular cataract

Correct Answer - D

Ans. is'd'i.e., Posterior subcapsular cataract

(Ref: KDT p. 293)

Adverse effects glucocorticoids:

- Posterior subcapsular cataract may develop after several years of use, especially in children

280. Pulse steroid therapy can be given in ?

a) Pemphigus vulgaris

b) Acute renal allograft rejection

c) Optic neuritis

d) All the above

Correct Answer - D

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

Pulse Steroid therapy

- Pulse therapy means the administration of supra pharmacologic doses of drugs in an intermittent manner to enhance the therapeutic effect and reduce the side effects.
- In context of corticosteroids, pulse therapy refers to discontinuous i.v. infusion of high doses of the medication, arbitrarily defined as treatment with more than 250 mg prednisone or its equivalent per day, for one or more days.
- There are no guidelines on the frequency or timing of administration of the i.v. pulses; which therefore includes single boluses, daily boluses given for 3 days in a row, or on alternate days for up to 12 days.
- The agent most commonly used for corticosteroid pulse therapy is methylprednisolone.

281. Cyproterone acetate used in ?

a) Precocious puberty in boys

b) Oral contraceptive

c) Ovulation inducing agent

d) PCOD

Correct Answer - A

Ans. is'a' i.e., Precocious puberty in boys

Ref: KDT Vhle p. 302)

Cyproterone acetate:

- Clinical indications are- precocious puberty in boys, inappropriate sexual behaviour in men, acne and hirsutism in women (usually in combination with an estrogen),

282. Antithyroid drug contraindicated in pregnancy ?

a) Propylthiouracil

b) I 131

c) Methimazole

d) Carbimazole

Correct Answer - B

Ans. is 'b' i.e., I 131

lRef: KDT 7tu/e p. 25

- Antithyroid treatment contraindicated in pregnancy
- Thyroidectomy and I 131 are contraindicated during pregnancy.

283. Which of the following is used to control bleeding associated with fibrinolytic agents like streptokinase?

a) Epsilon amino-caproic acid

b) Tranexamic acid

c) Factor VIII infusion

d) Blood transfusion

Correct Answer - A:B

Ans. is 'b' > a'i.e., Tranexamic acid; > Epsilon amino-caproic acid

lRef: KDT 7h/e p. 6281

Antifibrinolytic drugs

- These drugs inhibit plasminogen activation and dissolution of clot.
- Examples are Epsilon amino-caproic acid (EACA), Aprotinin and Tranexamic acid.

284. Warfarin embryopathy manifests characteristically as ?

a) Chondrodysplasia punctata

b) Dysplastic hips

c) Auditory sensineuronal hearing loss

d) Gastrointestinal atresias

Correct Answer - A

Ans. is 'a' i.e., Chondrodysplasia punctata

Ref: Nelson 20th/e P. 2397)

- Warfarin embryopathy is characterized by bone and cartilage abnormalities known as chondrodysplasia punctata.
- Affected infants may have nasal hypoplasia and excessive calcifications in the epiphyses and vertebrae.

285. Doxylamine used in management of nausea and vomiting is marketed with which vitamin ?

a) Thiamine

b) Riboflavin

c) Niacin

d) Pyridoxine

Correct Answer - D

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

[Ref: KDT 7e p. 663]

Doxylamine

- **Sedative** H1 antihistamine with prominent anticholinergic activity. Marketed in combination with pyridoxine, it is specifically promoted in India for 'morning sickness' (vomiting of early pregnancy), although such use is not made in the UK and many other countries.

286. Mosapride produces its gastrokinetic effects by acting as an agonist at which of the following receptor?

a) 5HT1

b) 5HT2

c) 5HT3

d) 5HT4

Correct Answer - D

Ans. is'd'i.e., 5HT4

[Ref: KDT p. 667)

Mosapride:

- It is a congener of cisapride with similar gastrokinetic and LES tonic action due to 5-HT4 agonistic (major) and 5-HT3 antagonistic (minor) action in the myenteric plexus.

287. Antibiotic gramicidin S is derived from ?

a) Bacillus brevis

b) Cl difficile

c) S epidermidis

d) Streptococcus bovis

Correct Answer - A

Ans. is'a'i.e., Bacillus brevis

[Rel Peptides: chemistry and biology p.84]

- Gramicidin-s is an antibiotic effective against some Gram positive and Gram negative bacteria as well as some fungi.
- It is a derivative of gramicidin, produced by the Gram positive bacterium Bacillus brevis.

288. Why intravenous quinine, used in the management of complicated and severe malaria, given with 5% dextrose?

a) To avert risk of hypoglycemia

b) To avert risk of dehydration

c) To avert risk of electrolyte imbalance

d) To maintain renal blood flow

Correct Answer - A

Ans. is'a'i.e., To avert risk of hypoglycemia

Ref: KDT Vh/e p. 8251

- Quinine for the management of complicated and severe malaria including cerebral malaria :
- Intravenous Quinine (i.v.) has been the drug of choice for cerebral malaria (falciparum malaria with impaired consciousness, and other forms of complicated malaria.
- Hypoglycaemia due to hyperinsulinemia is the most important side effect due to intravenous administration of quinine, which can be prevented by infusing quinine in 5% dextrose.

289. Latest drug used for treatment of MDR TB patients is ?

a) Bedaquiline

b) Amithiozone

c) Capreomycin

d) Linezolid

Correct Answer - A

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

(Ref: Principles and practice of infectious diseases by John E. Bennet, p. 4741

Bedaquiline:

- It is a diaryl quinolone.
- It acts by inhibiting M. tuberculosis adenosine triphosphate synthase.
- FDA has approved bedaquiline for the management of drug resistant tuberculosis with a black box warning, relating to possible cardiac toxicity and sudden death.

290. HIV strains resistant to which of the following drugs may show cross resistance to Abacavir?

a) Lamivudine

b) Didanosine

c) Enfuvirtide

d) Raltegravir

Correct Answer - A

Ans. is'a'i.e.Lamivudine

lRef: KDT p.. 8081

- Resistance to abacavir develops slowly, and it exhibits little cross resistance with other NRTIs. Strains of HIV having resistance to zidovudine and lamivudine show cross resistance with abacavir.

291. Only drug used in pregnancy with syphilis ?

a) Penicillin

b) Clindamycin

c) Azithromycin

d) Erythromycin

Correct Answer - A

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

[Ref: Harrison's 18th/e p. 1871]

Management of Syphilis in Pregnancy:

- Penicillin is the only recommended agent for the treatment of syphilis in pregnancy.
- If the patient has a documented penicillin allergy, desensitization and penicillin therapy should be undertaken according to the CDC's 2010 guidelines.

292. Which of the following is a bactericidal drug against Mycobacterium leprae?

a) Erythromycin

b) Ofloxacin

c) Cotrimoxazole

d) Amoxicillin

Correct Answer - B

Answer- B. Ofloxacin

Ofloxacin Over 99.9% bacilli were found to be killed by 22 daily doses of ofloxacin monotherapy

293. WHO recommended regime for the treatment of Brucella infection is ?

a) Streptomycin with doxycycline

b) Rifampicin with doxycycline

c) Rifampicin with ciprofloxacin

d) Streptomycin with erythromycin

Correct Answer - B

Ans. is 'b' i.e., Rifampin with doxycycline

lRef : Harrison 18n/e p. 1299,1672 & l4/e p. 1268).

- The gold standard for the treatment of brucellosis in adults is IM streptomycin (0.75-1 g daily for 14-21 days) together with doxycycline (100 mg twice daily for 6 weeks).
- In both clinical trials and observational studies, relapse follows such treatment in 5-10 % of cases.
- The usual alternative regimen (and the current World Health Organization recommendation) k rifampin (600-9{n mg/it) plus doxycycline (100 mg twice daily) for 6 weeks.

294. Indication for stopping rifampicin ?

a) Hepatitis

b) Visual loss

c) Thrombocytopenia

d) Peripheral neuropathy

Correct Answer - C

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

lRef: ATT drug guide p. 7391

- Among the given options, hepatitis and thrombocytopenia are adverse effects of rifampicin.
- "If thrombocytopenia purpura or anaemia occurs, rifampin should be stopped and should never be restarted".
- Rifampicin can be restarted under close observation and supervision, once the liver functional normalize.

295. Which of the following is not true about silver sulphadiazine used in burns?

a) Local side effects include burning and itch

b) It is used for treating established infection

c) It is good for preventing infection of chronic ulcers

d) Released silver ion is effective for the antibacterial activity

Correct Answer - B

Ans. is'b'i.e., It is used for treating established infection

[Ref: KDT vh/e p. 7061

Silver sulfadiazine:

- Used topically as 1 % cream, it is active against a large number of bacteria and fungi, even those resistant to other sulfonamides, e.g. Pseudomonas.
- It slowly releases silver ions, which appear to be largely responsible for the antimicrobial action.
- It is considered to be one of the most effective drugs for preventing infection of burnt surfaces and chronic ulcers and is well tolerated.
- However, it is not good for treating established infection.

296. Imipeneme is active against which of the following organism/s?

a) Gram positive cocci

b) *B. fragilis*

c) *Cl. difficile*

d) All the above

Correct Answer - D

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

[Ref KDT 7/e p. 731]

Imipenem

- A derivative of thienamycin, imipenem is an extremely potent and broad spectrum bactericidal antibiotic whose range of activity includes gram-positive cocci, Enterobacteriaceae, *Ps. aeruginosa*, *Listeria* as well as anaerobes like *Bact. fragilis* and *Cl. difficile*.

297. Cizotinib is inhibitor of which receptor ?

a) Tyrosine kinase

b) VEGF receptor

c) TNF alpha receptor

d) PDGF receptor

Correct Answer - A

Ans. is 'a'i.e., Tyrosine kinase

RefCardio - oncology: principles, prevention and management, by puja Mehta, p. 10)

Crizotinib

- It is a small molecule multitargeted tyrosine kinase receptor inhibitor targeting ALK, MET, ROS1 kinases.
- By inhibiting ALK tyrosine kinase activity, crizotinib inhibits cell proliferation, induces G1 - S phase cell cycle arrest and apoptosis.
- It is approved for the first line in the management of metastatic non-small cell lung cancer with an ALK mutation.

298. Bortezomib drug used in ?

a) Multiple myeloma

b) RCC

c) Liver cell carcinoma

d) Pancreatic carcinoma

Correct Answer - A

Ans. is 'a' i.e., Multiple myeloma

Uses of bortezomib:

- The prime indication of bortezomib is multiple myeloma, both for first line combined therapy as well as for relapsed disease.
- It is also used for refractory mantle cell lymphoma.

Note: The most prominent adverse effect of bortezomib is peripheral neuropathy. Others are diarrhea, fatigue, bone marrow depression especially thrombocytopenia.

299. Siltuximab is used in treatment of ?

a) Castleman's disease

b) Sezary syndrome

c) Ankylosing spondylitis

d) Non hodgkins lymphoma

Correct Answer - A

Ans. is 'a' i.e., Castleman's disease

Ref: Multiple myeloma, an issue of hematology oncology clinics E
booh Kenneth C Anderson p. 9171

Siltuximab (Anti IL-6):

- IL-6 is produced by the stromal cells of the bone marrow, and plays a crucial role in the proliferation and survival of multiple myeloma cells.

300. Tocilizumab acts as an antagonist at which receptor?

a) IL 1

b) IL 2

c) IL 6

d) TNF

Correct Answer - C

Ans. is 'c' i.e., IL 6

(Ref: Harisons 18th/e p. 2750)

Tocilizumab:

- Tocilizumab is a humanized monoclonal antibody directed against the membrane and soluble forms of the IL-6 receptor.

301. What enzyme is inhibited by etoposide ?

a) Topoisomerase I

b) Topoisomerase II

c) Dihydrofolate reductase

d) Dihydro orotate oxidase

Correct Answer - B

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

(Ref: KDT 7h/e p. 8661)

- Etoposide
- Semisynthetic derivative of podophyllotoxin, a plant glycoside'
- Not a mitotic inhibitor, but arrests cells in the G2 phase and causes DNA breaks by affecting DNA topoisomerase-2 function.

302. Which medication cannot be given in diarrhea in pregnancy ?

a) Oral rehydration therapy

b) Stimulant purgative

c) Loperamide

d) Diphenoxylate-atropine

Correct Answer - B

Ans. is 'b' i.e., Stimulant purgatives

lRef: KDT 7/e p. 6741

Stimulant purgatives:

- They are powerful purgatives: often produce griping. They irritate intestinal mucosa and thus were thought to primarily stimulate motor activity.
- They can reflexly stimulate gravid uterus, therefore are contraindicated during pregnancy.

303. Nonoliguric kidney failure occurs with administration of which of the following drug/s?

a) Gentamycin

b) Cisplatin

c) Ifosfamide

d) All the above

Correct Answer - D

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

(Ref: Porth pathophysiology: Concepts of altered health states, by Charlotte Pooler p. 823)

- ARF with urine output > 600 ml/day is defined as non-oliguric renal failure-
- Important drugs causing non-oliguric renal failure are -**
- Aminoglycosides (e.g.gentamicin)
 - Amphotericin B
 - Ifosfomide
 - Radiocontrast agents
 - Cyclosporine

304. Potassium channel opener ?

a) Stiripentol

b) Retigabine

c) Lacosamide

d) Modafinil

Correct Answer - B

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

[Ref. Epilepsy and brain tumors by Herbert B. Newton, p. 17f]

Potassium channel openers

- A potassium channel opener is a type of drug which facilitates ion transmission through Potassium channels.
- Diazoxide vasodilator used for hypertension, smooth muscle relaxing activity
- .. Minoxidil vasodilator used for hypertension, also used to treat hair loss
- 2. Nicorandil vasodilator used to treat angina
- 3. Pinacidil
- 4. **Retigabine, an anticonvulsant**
- 5. Flupirtine, analgesic with muscle relaxant and anticonvulsant properties

305. Drugs causing painful salivary glands all except ?

a) Phenybutazone

b) Ambroxol

c) Clozapine

d) Iodides

Correct Answer - B

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

[Ref:

<http://www.ijohmr.com/upload/Adverse%20Effects%20of%20Drugs%20o2>

Drugs associated with salivary gland enlargement

- Clozapine may cause transient salivary gland swelling as well as sialorrhea.

306. Oral rehydration therapy takes advantage of which transporter in GIT ?

a) Na Glucose co transport

b) K glucose co transport

c) Na calcium co transport

d) Na channel

Correct Answer - A

Ans. is'a'i.e., Na Glucose co transport

(Ref; KDT 7/ep.679)

- Oral rehydration is possible if glucose is added with salt.
- It capitalizes on the intactness of glucose coupled Na⁺ absorption (Na glucose co transport), even when other mechanisms have failed or when intestinal secretion is excessive, because the secreted fluid lacks glucose and cannot be reabsorbed.

307. Which of the following is not true about hydroquinone?

a) It is a weak hypopigmenting agent

b) It inhibits tyrosinase

c) Response is incomplete and pigmentation may recur

d) It should not be used for melasma or chloasma of pregnancy

Correct Answer - D

Ans. is'd'i.e., It should not be used for melasma or chloasma of pregnancy .

Ref: KDT Vhle p. 8921

Hydroquinone:

- It is a weak hypopigmentation agent.
- Inhibits tyrosinase and other melanin forming enzymes, decreases formation of and increases degradation of melanosomes.
- Regular application (as 2-6% lotion or cream) for months is required in melasma, chloasma of pregnancy, etc.

308. Oral iron chelating agent(s) is/are -

a) Desferrioxamine

b) Deferiprone

c) Deferasirox

d) b and c

Correct Answer - D

Ans. is 'b' i.e., Deferiprone; 'c' i.e., Deferasirox

o Amongst the given options; desferrioxamine, deferiprone and deferasirox are used for iron poisoning. BAL and succimer are not used for iron poisoning.

o Desferrioxamine is given parenterally (IM or IV), whereas deferiprone and deferasirox are used orally.

309. Which of the following drug is used in SIADH?

a) Tolvapatan

b) Desmopressin

c) Vwb factor

d) Terlipressin

Correct Answer - A

Ans. A. Tolvaptan

Tolvaptan:

- Vasopressin antagonists.
- Orally active nonpeptide selective V2 receptor antagonist.
- Metabolized by CYP3A4 – Not given to patients receiving this isoenzyme inhibitor.
- Given once daily.
- $t_{1/2}$: 6–8 hours.

Actions:

- Increases free water clearance by kidney (aquaretic).
- Corrects lower plasma Na^+ levels.

Uses:

- Useful for hyponatremia treatment.
- Hyponatremia caused by CHF, cirrhosis of liver or syndrome of inappropriate ADH secretion (SIADH).

Side effect:

- Thirst & dry mouth (most frequent).
- Fever, G.I. upset & hyperglycaemia.

310. Fracture at the angle of mandible most commonly involves which tooth?

a) Second premolar

b) First molar

c) Incisor

d) Third molars

Correct Answer - D

Ans. is 'd' i.e., Third molars [*Ref Fractures of the Facial Skeleton p. 71*]

- The most common teeth involved in fracture of angle of mandible are the third molars.

311. Grey powder (chalk + mercury) is used in ?

a) Poroscopy

b) Cheiloscopy

c) Dactylography

d) Palato prints

Correct Answer - C

Ans. is 'c' i.e., Dactylography [Ref: Reddy 26thVe p. 75]

A latent finger print may be developed by dusting the area with coloured powders to provide a contrast, and its pattern is recorded by photography. It can also be examined by oblique lighting. The commonly used powder is 'grey' powder (chalk and mercury), but white powders (lead carbonate or French chalk) are used for dusting dark surfaces.

312. Krogmans table system is used for ?

a) Age determination

b) Sex determination

c) Dental examination

d) Calculating estimated height

Correct Answer - B

Ans. is 'b' i.e., Sex determination [Ref Reddy 30thie p. 59]

- Krogman's table is used to determine the percentage of accuracy in sex determination from isolated skeletal parts.
- According to Krogman, the degree of accuracy in sexing adult skeletal remains is :-
- Entire skeleton - 100 %
- Pelvis alone 95 %

313. Xiphoid fuses with sternum by what age ?

a) 30 years

b) 35 years

c) 40 years

d) 45 years

Correct Answer - C

Ans. is 'c' i.e., 40 years [*Ref Parikh 6th le p. 2.30, 2.31*]

314. All of the following ossification centers are present at 7 months of intrauterine life except ?

a) Talus

b) Calcaneum

c) Clavicle

d) Olecranon

Correct Answer - D

Ans. is 'd' i.e., Olecranon [Ref: Parikh 6th/e p. 5.77]

315. How many superadded teeth appear in each jaw?

a) 2

b) 4

c) 6

d) 8

Correct Answer - C

An;. is 'c' i.e.,6 [Ref Reddy 30thie p. 61]

Temporary teeth, (milk teeth or deciduous teeth) start appearing at about 6 months, are 20 in number: being 4 incisors, 2 canines and 4 molars in each jaw. They start shedding at about 6 years, when permanent teeth start appearing.

316. Primary dentition is complete by:
UPSC 08

a) 1.5 years

b) 2.5 years

c) 3.5 years

d) 4.5 years

Correct Answer - B
Ans. 2.5 years

317. Which X-ray needs to be taken for 16 year old male is ?

a) Wrist

b) Elbow

c) Shoulder

d) Ilium

Correct Answer - B

Ans. is 'b' i.e., Elbow [*Ref Parikh 6th/e p. 2.10*]

318. Which is the teeth referred to if by haderup classification it is denoted as (-4) ?

a) Upper canine

b) Lower first premolar

c) Upper second premolar

d) Lower first molar

Correct Answer - B

Ans. is 'b' i.e., Lower first premolar [Ref: Reddy 26^aVe p. 87]

319. Rules followed amongst medical professionals which are mutual ?

a) Medical etiquettes

b) Medical ethics

c) Privileged communication

d) Vicarious responsibility'

Correct Answer - A

Ans. is 'a' i.e., Medical etiquettes [Ref Reddy 30thie p. 1]

Medical etiquettes

- Medical etiquettes : It refers to existing customs of brotherhood among members of medical profession, i.e. courtesy followed between members of medical profession, e.g. it is a custom not to charge another doctor or his close relatives. Medical ethics
- The earliest code of medical ethics was Hippocratic oath. It is modified by World Medical Association, and was named as 'Declaration of Geneva'; it is followed by MCI as code of medical ethics.

320. If a patient requests his medical records, they should be provided to the patient within what period of time?

a) 7 days

b) 15 days

c) 21 days

d) 30 days

Correct Answer - D

Ans. is 'd' i.e., 30 days [Ref: *Personal Injury and the Law of Torts for Paralegals p. 253*]

- The patient can request his medical records, which normally should be provided to the patient within 30 days. This is a national standard.
- The medical provider can extend the 30 days to a total of 60 days for good cause. The patient has to pay for the cost of copies and postage.
- Others who may obtain records are parents of minor children, legal guardians or an agent (for eg. Someone designated in a Health Care Power of Attorney).
- Police do not have a right to demand medical records except when there is statutory provision for such requisitions.

321. Dying declaration can be recieved by :

a) Medical officer

b) Lawyer

c) Police officer

d) All

Correct Answer - D
D i.e. All

322.

Which of the following deals with section 377, I.P.C?

a) Unnatural sex offences

b) Rape

c) Incest

d) Adultery

Correct Answer - A

Voluntary sexual intercourse against the order of nature with any man, woman, or animal is an **unnatural sexual offence (Section 377 I.P.C)**.

Penetration is sufficient to constitute the offence. These offences are punishable with imprisonment for life or upto ten years and also with fine.

Ref: The Essentials of Forensic Medicine and Toxicology, 27th edition, Page 363.

323. 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

324. Privileged communication is made between:

a) Patient and Doctor

b) Doctor and court of Law

c) Doctor and Relative

d) Doctor and concerned authority

Correct Answer - D

Privileged communication is a statement made bonafide upon any subject matter by a doctor to the concerned authority, due to his duty to protect the interest of the community or the state.

It should be made to the person having interest in it or in reference of which he has a duty.

Ref: Parikh' Textbook of Medical Jurisprudence Forensic Medicine and Toxicology, 5th Edition, Page 216 and 6th Edition, Page 1.34;
The Essentials of Forensic Medicine and Toxicology By Dr K S Narayan Reddy, 27th Edition, Pages 28-9

325. Killing of a 6 months old child by parents is known as ?

a) Genocide

b) Infanticide

c) Neonatal homicide

d) Abortion

Correct Answer - B

Ans. is 'b' i.e., Infanticide [Ref Parikh 6th/e p. 5.75; SK Parikh 4thVe 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. Thus the first question in the investigation of a case of infanticide is, whether the child was still born or dead born or whether it was born live.

326. Declaration of Sydney is related to ?

a) Time of death

b) Infliction of torture

c) Therapeutic abortion

d) Humanitarian goals of medicine

Correct Answer - A

Ans. is 'a' i.e., Time of death [Ref APC FMT by Aggrawal p. 20]

- Declaration of Sydney
- The advent of organ transplantation made this Declaration a guide to determining the time of death of the comatose donor. "Brain death" has displaced "cardiac death" as the essential criterion; and the diagnosis must be made before there is organ death.
- The Declaration also states that "If transplantation of an organ is involved, the decision that death exists should be made by one or more physicians; and the physicians determining the moment of death should in no way be immediately concerned with the performance of the transplant."
- This makes for objectivity. But it is incorrect to say that "death exists" or refer to "the moment of death". The patient is not dead until after life support has been withdrawn.

327. Autopsy is known by all names except ?

a) Obduction

b) Necropsy

c) Biopsy

d) Postmortem examination

Correct Answer - C

Ans. is 'c' i.e., Biopsy [Ref.' Reddy 26thle p. 89]

- An autopsy (also known as a post-mortem examination, obduction, necropsy, or autopsia cadaverum) is a highly specialized surgical procedure that consists of a thorough examination of a corpse by dissection to determine the cause and manner of death and to evaluate any disease or injury that may be present.

328. Cardiac chambers are opened in autopsy in which order?

i) Left atrium

ii) Left ventricle

iii) Right atrium

iv) Right ventricle

a) i → ii → iii → iv

b) iii → iv → i → ii

c) i → iii → ii → iv

d) ii → iv → iii → i

Correct Answer - B

Ans. is 'b' i.e., iii → iv → i → ii [Ref Reddy's 26th/e p. 97] Principle of autopsy of heart

- Heart is opened in the direction of the flow of blood with the enterotome.
- The right atrium is cut between the openings of superior and inferior vena cavae.
- A small secondary incision is made to open the auricular appendage to detect thrombi
- In opening the right ventricle, the lateral margin of right ventricle faces the dissector, the atria being directed towards him.
- The left atrium is cut between the openings of the pulmonary veins. Then, the left atrium is cut along its lateral wall. This incision extends through the mitral orifice, and passes along lateral margin of the left ventricle up to the apex.
- The next incision extends from the apex along the interventricular septum into the aorta, opening the aortic valve.

329. In how many flaps is fetal skull opened during autopsy?

a) 2

b) 3

c) 4

d) 5

Correct Answer - C

Ans. is 'c' i.e., 4 [*Ref Autopsy Pathology Manual p. 63*]

- In infants and fetuses, before skull ossification and suture closure is complete, the fontanelles can be separated and the skull opened in 4 flaps, in a "butterfly" manner.
- In newborn infants in whom sagittal sinus trauma or developmental abnormalities are suspected, the following alternative cranial opening preserves the critical anatomy.
- To preserve the superior sagittal sinus, dura is incised at lateral angles of the anterior fontanelle parallel to and approximately 1 cm lateral on both sides of the midline, preserving the superior sagittal sinus in between.
- Each of these incisions is continued anteriorly and posteriorly (into frontal and occipital bones) and laterally (into the parietal bones) to create two large bone flaps, each on a "hinge" of uncut parietal bone inferiorly.
- In adults, the saw line is made in slightly V - shaped direction - to remove the skull cap.

330. When the cause of death is not clear even after entire examination on autopsy, what it is called?

a) Defective autopsy

b) Normal autopsy

c) Obscure autopsy

d) Negative autopsy

Correct Answer - D

Ans. is 'd' i.e., Negative autopsy [*Ref APC Forensic Medicine and Toxicology p. 124*]

331. How is cooling curve of the body postmortem?

a) Parabola

b) Hyperbola

c) Sigmoid

d) Linear

Correct Answer - C

Ans. is 'c' i.e., Sigmoid [*Ref Forensic Medicine : Clinical and Pathological Aspects p. 102*]

- Body cooling postmortem follows the Newton's law of cooling.
- The rates of cooling at the ends of the curve are slower than the rates in the mid portion - resulting in Sigmoidal shape of the cooling curve

332. Marbling is noticed by :

a) 18 hours

b) 36 hours

c) 48 hours

d) 24 hours

Correct Answer - B
B i.e. 36 hours

333. Feature of Post mortem clots are ?

a) Can be washed away

b) Laminated

c) Rubbery

d) Variegated

Correct Answer - A

Ans. is 'a' i.e., Can be washed away [*Ref Reddy 29^m/e p. 164*]

334. Post mortem incision shape in infant

a) I shaped

b) J shaped

c) T shaped

d) L shaped

Correct Answer - A

Ans. is 'a' i.e., I shaped [Ref Reddy 30thle p. 108]

Types of primary skin incisions are :?

1. I-shaped incision : Extending from the chin straight down to symphysis, passing to the side the umbilicus.
2. Y-shaped incision : Begins close to acromion process and then extends down below the breast across to xiphoid process from where it is carried downwards to the symphysis pubis.
3. Modified Y-shaped incision : Incision is made from suprasternal notch to symphysis pubis. The incision extends from suprasternal notch over the clavicle to its center on both sides and then passes upwards over the neck behind the ear.

335. Prolonging a person's life through technological means is known as :?

a) Dysthanasia

b) Novus actus interveniens

c) Euthanasia

d) Orthotanasia

Correct Answer - A

Ans. is 'a' i.e., Dysthanasia *[Ref Internet]*

- In medicine, dysthanasia means "bad death" and is considered a common fault of modern medicine: Dysthanasia occurs when a person who is dying has their biological life extended through technological means without regard to the person's quality of life.

336. Changes in middle ear after birth are observed in?

a) Werdin's test

b) Ploucquet's test

c) Fodere's test

d) Breslau's test

Correct Answer - A

Ans. is 'a' i.e., Werdin's test [Ref SK Singhal 4thle p. 271]

- Werdin's test: Before birth middle ear contains gelatinous embryonic tissue which is replaced by air after respiration.

337. Flaying is seen in which wound?

a) Laceration

b) Incised wound

c) Stab wound

d) Contusion

Correct Answer - A

Ans. is 'a' i.e., Laceration [Ref Reddy 31"/e p. 174]

LACERATION (TEAR OR RUPTURE)

- Lacerations are tears or splits of skin, mucous membrane and underlying tissue (e.g., muscle or internal organs). Lacerations are produced by application of blunt force to broad area of the body, which crush or stretch tissues beyond the limits of their elasticity. Localized portions of tissue are displaced by the impact of the blunt force, which sets up traction forces and causes tearing of tissues.

338. Which one of the following is not a type of virginal hymen

a) Cruciate

b) Imperforate

c) Cribriform

d) Septate

Correct Answer - A

Ans. is 'a' i.e., Cruciate [Ref Reddy 26thle p. 337]

The different types of hymen are :?

- Semilunar or crescentic (commonest type) the opening is placed anteriorly. Notches or clefts are seen at 10 and 11 clock position, which may be equal in size or more prominent on one side.
- Annular : opening is oval and situated near the centre of the membrane.
- Infantile : a small linear opening in the middle.
- Cribriform : several openings.
- Vertical the opening is vertical.
- Septate: two lateral openings occur side by side, separated partially or completely by thin strip of tissue.
- Imperforate: no opening.

339.

Section defining the rape ?

a) 304 B IPC

b) 302 IPC

c) 375 IPC

d) 376 IPC

Correct Answer - C

Ans. is 'c' i.e., 375 IPC

Rape

- According to Section 375 IPC, a man is said to commit rape, if he has sexual intercourse with a women :?
 - .. Against her will
 2. Without her consent
 3. With her consent if she is
 - Less than 16 years of age.
 - With his own wife less than 15 years of age.
 - Intoxicated or has unsound mind so that she is unable to understand the consequences.
 - Consent is obtained by unlawful means, i.e. fears of death or hurt to herself or to some one whom she is interested.
 - Impersonation , i.e. when the man knows he is not her husband and her consent is given because she believes that he is another man to whom she is lawfully married.

340. The “Knot” in judicial hanging is placed at:

a) The back of the neck

b) The side of the neck

c) Below the chin

d) Only left side of neck

Correct Answer - C

Below the chin.

A common and effective method of Judicial hanging is by putting the knot beneath the chin onto the neck. Though the knot can be placed on the side of the neck also.

341. Most common substance abused in India is ?

a) Heroin

b) Alcohol

c) Cocaine

d) Cannabis

Correct Answer - B

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

- The most commonly abused substance → Alcohol
- Second most commonly abused substance → Heroin (Opioid)
- Third most commonly abused substance → Cannabis

342. Glass blowers shake seen in which poisoning?

a) Mercury

b) Lead

c) Phosphorus

d) Arsenic

Correct Answer - A

Ans. is 'a' i.e., Mercury [*Ref Parikh 6thVe p. 9.16; Reddy 30thVe p. 495*]

- Moderately coarse, intentional tremors starting in fingers, hands and legs are called as Danbury tremors or hatter's shake or glass blower's shake. They are seen in chronic mercury poisoning. In severe form, patient becomes unable to dress, write or walk, *i.e.* concussio mercurialis (shaking palsy).

343. Minimata disease is due to ?

a) Mercury

b) Copper

c) Arsenic

d) Lead

Correct Answer - A

Ans. is 'a' i.e., Mercury [*Ref Clinical medicine 3rd/e p. 712*]

- Minimata disease is due to organic mercury poisoning due to eating fish poisoned by mercury.

344. A person has been brought in casualty with history of road accident. He had lost consciousness transiently and gained consciousness but again became unconscious. Most likely, he is having brain hemorrhage of

a) Intracerebral

b) Subarachnoid

c) Subdural

d) Extradural

Correct Answer - D
Ans. is 'd' i.e. Extradural

345. Griffith experiment was done on ?

a) Streptococcus

b) Pneumococcus

c) Enterococcus

d) Staphylococcus

Correct Answer - B

Ans. is 'b' i.e., Pneumococcus [*Ref Advanced biology p. 396*]

- In 1928, Frederick Griffith's experiment first demonstrated transformation in streptococcus pneumoniae.
- Frederick Griffith's experiment on pneumococcus (streptococcus pneumoniae) proved that genetic characters are transmitted from one generation to the other through transformation.

346. Colony forming unit includes?

a) Viable cells

b) Dead cells

c) Viable plus dead cells

d) None

Correct Answer - A

Ans. is 'a' i.e., Viable cells [Ref *Environmental microbiology and biotechnology* p. 41]

- Colony-forming unit (CFU or cfu) *is a measure of viable bacterial or fungal cells.* In direct microscopic counts (*cell counting using haemocytometer*) where all cells, dead and living, are counted, but CFU measures only viable cells.
- For convenience the results are given as CFU/mL (colony-forming units per milliliter) for liquids, and CFU/g (colony-forming units per gram) for solids. CFU can be calculated using miles and misra method, it is useful to determine the microbiological load and magnitude of infection in blood and other samples.

347. Medium used to isolate M. tuberculosis contains all except ?

a) Malachite green

b) Hen's egg

c) Bromothymol blue

d) Glycerol

Correct Answer - C

Ans. is 'c' i.e., Bromothymol blue

Lowenstein-Jensen Medium (LT medium)

- LJ medium consists of mineral salts, asparagine, glycerol, malachite green and hen's egg.
- The malachite green prevents the growth of other microorganism on medium.
- It is used as a primary isolation medium for mycobacteria.

Mineral salts are monopotassium phosphate, magnesium or sodium citrate and magnesium sulphate

348. Limulus amoebocyte lysate test is used to detect ?

a) Endotoxin

b) Verocytotoxin

c) Pyroexotoxin-A

d) Alpha-toxin of *Cl. perfringens*

Correct Answer - A

Ans. is 'a' i.e., Endotoxin [*Ref asn.org*]

- Limulus amoebocyte lysate (LAL), an aqueous extract of amoebocytes from the horseshoe crab, *Limulus polyphemus*, reacts with endotoxin to form a gel or a clot.
- Under standardized conditions, this reaction detects picogram quantities of endotoxin.
- The clotting reaction is triggered when the LAL reagent comes in contact with the lipopolysaccharide (endotoxin) fraction of the cell wall of gram-negative bacteria.
- The endotoxin activates an enzyme in the LAL reagent which then reacts with a low-molecular-weight clottable protein to form a gel.

349. Inspissation is ?

a) Heating at 160°C for 15 minutes

b) Heating at 160°C for 30 seconds

c) Heating at 80°C for 30 minutes

d) Heating at 120°C for 15 seconds

Correct Answer - C

Ans. is 'c' i.e., Heating at 80°C for 30 minutes [Ref Handbook of media for clinical microbiology p. 495]

Inspissation: It is heat exposure method that is employed with high protein material, like *egg containing media*, that cannot withstand the high temperature used in autoclaving.

- The medium is exposed to 80°C for 30 minutes for three successive days in inspissator. It can be used for LI medium and loeffler serum slop.

350. Spoligotyping is done for ?

a) Staphylococcus

b) Salmonella

c) Mycobacterium tuberculosis

d) Brucella abortus

Correct Answer - C

Ans. is 'c' i.e., Mycobacterium tuberculosis [Ref www.ncbi.nlm.nih.gov]

- Spoligotyping (spacer oligotyping) is a type of polymerase chain reaction (PCR).
- Compared with other PCR-based methods that combine detection and typing of such DNA, spoligotyping is more sensitive, because it targets the direct repeats (DRs) present in multiple (sometimes up to 60) copies in the genomic DR locus of *M. tuberculosis* complex bacteria.
- The well-conserved 36-bp DRs are interspersed with nonrepetitive spacer sequences of 34 to 41 bp in length (2, 3, 4).

351. Triple sugar iron agar showing gas production with red slant and yellow butt. The organism cultured is ?

a) E coli

b) Shigella flexneri

c) Pseudomonas

d) None

Correct Answer - B

Ans. is 'b' i.e., Shigella flexneri [Ref Clinical microbiology p. 1263]

352. Example of heterophile antigen is ?

a) Forssman antigen

b) Cryptococcus polysacchoride

c) Protein A of staphylococcus

d) All of the above

Correct Answer - A

Ans. is 'a' i.e., Forssman antigen [*Ref Essentials of microbiology p. 89*]

Heterogenetic (Heterophile) specificity

- Same or closely related antigens occurring in different biological species, classes and kingdoms are known as heterogenetic or heterophile antigens.

353.

MHC restriction is a part of all except ?

a) Antiviral cytotoxic T cell

b) Antibacterial helper T cell/cytotoxic cells

c) Allograft rejection

d) Autoimmune disorder

Correct Answer - D

Ans. is d i.e., Autoimmune disorder

MHC - Class I restriction

.. Graft rejection

2. Cytotoxic cell mediated cytolysis of viral infected or tumor cells.

MHC - Class II restriction

.. Graft versus host response

2. Mixed leukocyte reaction

354. Which of the following cell does not have cytotoxic activity ?

a) NK cells

b) Cytotoxic T-cells

c) Helper T-cells

d) Antibody dependent cells

Correct Answer - C

Ans. is 'c' i.e., Helper T-cells [Ref : *Essentials of microbiology p. 786*]

355. RA antibody causes which type of hypersensitivity?

a) Type 1

b) Type 2

c) Type 3

d) India ink

Correct Answer - C

Ans. is 'c' i.e., Type 3

- Rheumatoid arthritis (caused by RA antibody) is type - 3 hypersensitivity.

356. Which stain is used for *Corynebacterium diphtheriae* ?

a) Geimsa

b) Albert

c) PAS

d) India ink

Correct Answer - B

Ans. is b' i.e., Albert

- The diphtheria bacillus was first observed and described by Klebs (1883) but was first cultivated by Loeffler (1884).
- Therefore, it is known as Klebs - Loeffler bacillus (KLB).
- *Corynebacterium diphtheriae* is gram positive slender rod (bacilli) which is noncapsulated and non-motile.
- The bacilli are arranged in a characteristic fashion in smears, being at various angles to each other, resembling the letter V or L Chinese letter or .neiform arrangement. There is characteristic 'Clubbed appearance'.
- Characteristic feature is irregular staining due to presence of granules, called Babes Ernest or volutin granules. These granules are also called metachromatic granules or polar bodies.

357. A 12 years old child presenting with painless neck swelling in supraclavicular region which started discharging after few days. The most probable diagnosis?

a) Scrofuloderma

b) Actinomycosis

c) Botromycosis

d) Fungal mycetoma

Correct Answer - A

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

- scrofuloderma is neck swelling with discharge. SCRUfuloderma is cutaneous tuberculosis due to direct extension of infection from an underlying tuberculosis present either in a lymphnode, bone or a joint.
- Starts as bluish painless swelling, which breaks open to form Sinuses -> Most common presentation is discharging sinuses.

358. There is outbreak of infection with staphylococcus in a burn ward. Best site to take a swab ?

a) Skin

b) Oral cavity

c) Nose

d) Conjunctiva

Correct Answer - C

Ans. is 'c' i.e., Nose [Ref: Harrison 19th/e p. 955-957; Jawetz 24th/e p. 224-230]

- S. aureus is part of normal human flora. The anterior nares is the most frequent site of human colonization although the skin (especially when damaged), vagina, axilla, perineum and oropharynx may also be colonized.
- Staphylococci are part of normal human bacterial flora with about 30% of general population being nasal carriers and another 10% carrying it on the perineal skin.

359. Toxic shock syndrome is due to ?

a) Endotoxin

b) Exotoxin

c) Lipopolysaccharide

d) Staphylococcal protein A

Correct Answer - B

Ans. is 'b' i.e., Exotoxin [Ref Harrison 19th/e p. 959]

TSS is a potentially fatal multisystem disease characterized by sudden high fever, fainting, watery diarrhea, headache and muscle ache.

360. Ideal percentage of CO₂ required for growth of Brucella abortus ?

a) 2-5%

b) 5-10%

c) 15-20%

d) 25-30%

Correct Answer - B

Ans. is. b. i.e., 5-10% [Ref : *Essentials of microbiology p. 719*]

"Addition of 5-10% CO₂, improves the growth of B abortus and B. melitensis".

All Brucella spp. are strictly aerobic, but some B. abortus biovars, some Brucella isolates from marine mammals, and B. ovis only grow in atmospheres containing 5-10% CO₂.

361. Miyagawa corpuscles are characteristic of ?

a) Psittacosis

b) Malaria

c) Rabies

d) Lymphogranuloma venerum

Correct Answer - D

Ans. is. d. i.e., Lymphogranuloma venerum [Ref : Textbook of STD p. 124]

- Inclusion body of C.trachomatis causing conjunctivitis
→ Halberstaedter prowazek (H.P.) body.
- Inclusion body of C. trachomatis causing L.G.V. -s Miyagawa's granulocorpuscles.
- In psittacosis -s Levinthal - toles - lillie bodies.

362. Bacteriophage carries gene for which of the following ?

a) Cholera toxin

b) Heat labile toxin of E. coli

c) Verocytotoxin of EHEC

d) Anthrax toxin

Correct Answer - C

Ans. is 'c' i.e., Verocytotoxin of EHEC

363. Cat scratch disease is characterized by?

a) Caused by a virus

b) Regional lymphadenopathy is prominent

c) More common in adults

d) **All** of the above

Correct Answer - B

Ans. is `b' i.e. Regional lymphadenopathy is prominent

- Cat-scratch disease (CSD) is a common and usually benign infectious disease *caused by the bacterium Bartonella henselae, a fastidious, intracellular, gram-negative bacteria.*
- cases are benign and self-limiting, but lymphadenopathy may persist for several months after other symptoms disappear. The disease usually resolves spontaneously, with or without treatment, in one month.

364. Most common form of Nocardial respiratory tract infection is ?

a) Laryngitis

b) Pharyngitis

c) Tonsillitis

d) Pneumonia

Correct Answer - D

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

[Ref: Harrison 19th/e p. 1086]

- Nocardia are 'gram positive' `acid fast' filaments.
- Nocardia are strict aerobes and partially urease and catalase positive. Since nocardiae are among the few aerobic microorganism that use paraffin as a carbon source, paraffin baiting can be used to isolate the organism from mixed culture.

365. Bisected pearls appearance on culture medium is seen in ?

a) Brucella

b) Bordetella

c) Haemophilus ducreyi

d) Pseudomonas

Correct Answer - B

Ans. is 'b' i.e., Bordetella [Ref: Ananthanarayan 9th/e p. 333]

- Bordetella are gram-negative, capsulated, fimbriated, nonmotile coccobacillus.
- They show bipolar metachromatic granules on staining with toluidine blue.

366. Haverhill fever is caused by ?

a) Bartonella henselae

b) Streptobacillus moniliformis

c) Eikenella corrodens

d) Coccidioides

Correct Answer - B

Ans. is 'b' i.e., Streptobacillus moniliformis [*Ref Textbook of Microbiology p. 712*]

- Streptobacillus moniliformis causes rat-bite fever in humans.
- It enters the body through the wound caused by the rat bite.
- The infection also occurs by the ingestion of water, milk or food contaminated with rat excreta. In these cases, the infection is known as 'Haverhill fever'.
- Clinical symptoms include fever, rash and arthralgia.

367. The bacteria producing a picture resembling 'pseudohemoptysis' in a sputum sample due to prodigiosin production is -

a) *Serratia marcescens*

b) *Erwinia herbicola*

c) *Ehrlichia sennetsu*

d) *Legionella pneumophila*

Correct Answer - A

Ans. is 'a' i.e., *Serratia marcescens*

. In genus *Serratia* only one species is of medical importance - *S. marcescens* (*Bacillus prodigiosus*).

. It may grow in sputum after collection and may suggest hemoptysis because of the pigment formed → Pseudohemoptysis

. It can cause meningitis, endocarditis, septicemia, peritonitis and respiratory infection.

368. Best culture for primary isolation of H. influenzae?

a) Blood agar

b) Fildes agar

c) Nutrient broth

d) Tryptose agar

Correct Answer - B

Ans. is 'b' i.e., Fildes agar

[Ref Ananthanarayan 9thVe p. 328 & Sth/e p. 335]

- H. influenzae does not grow on blood agar.
- Culture media used for isolation are Fildes agar (best for primary isolation), Levinthal medium (capsulated strains show iridescence) and Chocolate agar.

369. True about *Corynebacterium diphtheriae* are all except:

a) Iron is required for toxin production

b) Toxin production is responsible for local reaction

c) Nonsporing, noncapsular and nonmotile

d) Toxin production is by lysogenic conversion

Correct Answer - B

Ans. (b) Toxin production is responsible for local reaction

"Mechanical complications of diphtheria are due to the membrane while the systemic effects are due to the toxin."

- Toxin acts mainly systemically though there are partial local effects.
- It has affinity for myocardium, adrenals and nerve endings.
- Toxin acts by inactivating EF-2 thus inhibiting protein synthesis.
- Toxin production is influenced by iron concentration in the medium. Toxin production is optimal at 0.14 p.g/ ml and is suppressed at 0.5 .tg/ml.
- Toxicogenicity of diphtheria bacillus depends on symbiotic bacteriophages, so it shows lysogenic or phage conversion i.e. nontoxicogenic strain toxicogenic strain by infecting with beta phage.

370. Corynebacterium diphtheriae can be grown within 6-8 hour on -

a) Potassium tellurite media with iron

b) McConkey's agar

c) Dorset egg medium

d) Loeffler's serum slope

Correct Answer - D

Ans. is 'd' i.e., Loeffler's serum slope

371. On blood agar target appearance of *Cl. perfringens* is due to which toxin ?

a) Alpha toxin

b) Theta toxin

c) Beta toxin

d) Mu toxin

Correct Answer - A

Ans. is 'a' i.e., Alpha toxin [*Ref Ananthanarayan 9/e p. 254*]

Two important characteristic feature of *Cl. perfringens* are :?

1. Target hemolysis (double zone hemolysis) on blood agar. It is a narrow zone of complete hemolysis by theta toxin which is surrounded by a wider incomplete hemolysis by alpha-toxin.
2. Naegler's reaction detects alpha toxin (phospholipase or lecithinase C). When *Cl. perfringens* is grown on a medium with the antitoxin spread on one half of the plate, colonies on the other half without the antitoxin will be surrounded by a zone of opacity. There will be no opacity around the colonies on the half of the plate with the antitoxin, due to the specific neutralisation of the alpha-toxin.

372. After 3 days of a road traffic accident, a wound shows crepitation in the subcutaneous tissue and muscle with foul-smelling discharge. Pus culture shows *Cl. perfringens*. All of the following features about *Cl. perfringens* are TRUE, EXCEPT:

a) It is the most common cause of gas gangrene

b) Can be detected by Nagler's reaction

c) The most important toxin is hyaluronidase

d) Gas gangrene strains produce heat resistant spores

Correct Answer - C

All types of *C. perfringens* produce the **alpha toxin, a necrotizing, hemolytic exotoxin that is a lecithinase.**

Hemolysis and gas production are characteristic.

Lecithinase activity is evaluated by the precipitate formed around colonies on egg yolk media (**Nagler's reaction**).

Gas Gangrene producing strains of *Cl. Perfringens* produce heat resistant spores.

Also know:

Gases formed in gas gangrene are hydrogen and carbon dioxide gas.

Ref: Ray C.G., Ryan K.J. (2010). Chapter 29. Clostridium, Peptostreptococcus, Bacteroides, and Other Anaerobes. In C.G. Ray, K.J. Ryan (Eds), Sherris Medical Microbiology, 5e.

373. Which of the following is false regarding H pylori ?

a) With chronic infection urease breath test become negative

b) H. pylori infection remains life long if untreated

c) Endoscopy is diagnostic

d) Toxigenic strains usually cause ulcer

Correct Answer - A

Ans. is 'a' i.e., With chronic infection urease breath test become negative

- . Urea breath test is the most consistently accurate test for diagnosis of H. Pylori infection.
- . It is useful for follow-up after treatment, as it becomes negative after treatment.
- . In chronic infection it remains positive.

About other options

- . Most H. pylori - colonized person do not develop clinical sequelae. They may carry infection life long.
- . Endoscopic culture is the most specific test.
- . Ulcer is caused by strains carrying vacuolating cytotoxin gene.

374. Phagocytosis of mycobacterium tuberculosis by macrophages is mainly mediated by:

a) IL 6

b) IL 3

c) IL 12

d) IFN Gamma

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

375. Cefoxitin - cycloserine fructose agar is used for ?

a) Neisseria

b) Clostridium difficile

c) Bacillus anttaxis

d) Reiter's treponema

Correct Answer - B

Ans. is 'b' i.e., Clostridium difficile [*Ref Clinical microbiology ydle p. 119*]

Cefoxitin - cycloserine fructose agar (CCFA) is an enriched selective and differential medium recommended for the isolation and cultivation of clostridium difficile from fecal specimens.

376. All of the following statements regarding melioidosis are true, EXCEPT:

a) It is caused by Burkholderia mallei

b) It is caused by a gram negative aerobic bacteria

c) Etiologic agent shows bipolar staining with methylene blue stain

d) Pulmonary infection is the most common form of melioidosis

Correct Answer - A

Melioidosis is caused by Burkholderia Pseudomallei. It is a free living small motile aerobic gram negative bacillary saprophyte normally found in soily ponds & rice paddies. Humans and animals are infected by inoculation, inhalation, or ingestion.

It grows at 42 degree C & oxidize glucose, lactose & is oxidase positive.

It is a facultative intracellular organism which replicates in neutrophils and macrophages with the help of a polysaccharide capsule.

The organism also possesses elements of a type III secretion system that plays a role in its intracellular survival.

Gram's stain of a specimen shows a small gram negative bacilli.

Wright's stain or methylene blue staining shows a bipolar regularly staining (safety pin appearance).

Positive culture is diagnostic.

Ref: Harrison's Principles of Internal Medicine, 18th Edition, Chapter 152

377. Reverse CAMP test is positive for ?

a) Streptococcus agalactiae

b) Listeria monocytogenes

c) Clostridium perfringens

d) Vibrio parahaemolyticus

Correct Answer - C

Ans. is 'c' i.e., Clostridium perfringens

- CAMP positive → Area of increased hemolysis (arrow head) around staphylococcus streaks (by streptococcus agalactiae).
- **CAMP test** is also positive in **Listeria monocytogenes**, **Reverse CAMP test** is positive in **Clostridium perfringens**.
- **Reverse CAMP test** : It is used to differentiate Cl perfringens from other Clostridia. CAMP positive group 'B' streptococcus is streaked in Blood agar and Cl perfringens is streaked perpendicular to it. There is enhanced hemolysis (arrowhead) between the growth of Cl.

378. Disease transmitted from men to animals:

a) Antropozoonoses

b) Zooanthroponoses

c) Amphixenoses

d) Aptoazonoses

Correct Answer - B
Ans. b. Zooanthroponoses

379. Neutrophil count below which there is increased risk of nosocomial invasive pulmonary aspergillosis -

a) < 4000/4

b) < 3000/4

c) < 2000/4

d) < 1000-500/RL

Correct Answer - D

Ans. is 'd' i.e., < 1000-500/RL [*Ref Essentials of medical microbiology p. 712*]

- Invasive aspergillosis is a severe respiratory infection with a mortality rate of over 90% in neutropenic patients.
- It is most often encountered in patients with absolute neutrophil counts of <500/4 from leukemia or chemotherapy.
- Patients undergoing bone marrow transplantation are susceptible to a greater extent than patients with heart, kidney, or liver transplants.

380. Nosocomial aspergillosis is spread by ?

a) Aerosols from renovation

b) Aerosols from doctor to patients

c) Contact in OPD

d) Contact with contaminated dressings

Correct Answer - A:D

Ans. is 'a > d' i.e., Aerosols from renovation > Contact with contaminated dressings

[Ref Clinical mycology E Book p. 72]

- Nosocomial transmission of *Aspergillus* to patients occurs primarily by airborne route (via aerosols), but contact transmission (e.g. direct inoculation from occlusive materials) has also been implicated.
- Most outbreaks of nosocomial airborne aspergillosis have been associated with construction or renovation in or adjacent to the hospital, contaminated air-handling systems, and insulation or fireproofing material within the walls or ceilings of hospital units.

381. Foam cells are seen in infection with which virus ?

a) Measles

b) EBV

c) Molluscum contagiosum

d) RSV

Correct Answer - B

Ans. is 'b' i.e., EBV [*Ref Textbook of CNS infection p. 184*]

EBV encephalomyelitis shows :

- .. Abnormal white matter with perivascular infiltrates of inflammatory cells and *foam* cells.
- ?. Some myelin is replaced by lipid-filled macrophages and hyperplastic astrocytes.

382. E6 gene product of HPV causes malignance transformation by acting on ?

a) p53 gene

b) RAS gene

c) C-myc gene

d) N-myc gene

Correct Answer - A

Ans. is 'a' i.e., p-53 gene [Ref : *Essentials of microbiology p. 712*]

- HPV selectively infects the epithelium of skin and mucous membrane and may immortalize the keratinocytes leading either asymptomatic infection, or warts or neoplasia.
- Products of E-genes (E6, E7) are related to immortalization or malignant transformation of keratinocytes by interfering with p53 and Rb genes, respectively.

383. Most common virus causing tumor in human ?

a) HSV

b) HPV

c) EBV

d) HTLV

Correct Answer - B

Ans. is 'b' i.e., HPV [*Ref Essentials of medical microbiology p. 719*]

- Warts are the most common tumor caused by viruses.
- HPV is the cause of warts.

384. Growth of virus in embryonated egg, eggs are incubated for -

a) 4-8 hours

b) 1-2 days

c) 5-12 days

d) 20-25 days

Correct Answer - C

Ans. is 'c' i.e., 5-12 days [Ref: Principles of microbiology - 213]

"For virus isolation, fertile chicken eggs are incubated for 5-12 days, and a viral Suspension or suspected virus - containing" tissue is injected into the fluid of the egg.

385. Most rapid test for diagnosis of malaria is ?

a) Thick blood smear

b) HRP-2 antigen

c) Thin blood smear

d) PCR

Correct Answer - B

Ans. is 'b' i.e., HRP-2 antigen [Ref Essentials of Microbiology 3/e p. 712]

- Rapid diagnostic tests are simple and the procedure can be performed on the spot in field conditions. These tests use finger-stick or venous blood, the completed test takes a total of 15-20 minutes, and a laboratory is not needed.

Rapid diagnostic tests are antigen based and directed against :

1. Histidine rich protein-II (HRP-II)
2. Plasmodium glutamate dehydrogenase (pGluDH)
3. Plasmodium falciparum lactate dehydrogenase (PfLDH)
4. Plasmodium falciparum aldolase (pAldo) or fructose-bisphosphate aldolase

386. Rapid diagnostic test for *P. falciparum* utilizes which enzyme ?

a) HRP-2

b) SGOT

c) LDH

d) Peroxidase

Correct Answer - C

Ans. is 'c' i.e., LDH [Ref : *Essentials of medical microbiology p. 712*]

Among the given options two are used in rapid diagnostic tests

:

.. HRF-2

?. LDH

- Among these LDH is an enzyme while HRP-2 is a simple protein antigen.

387. 18 years old male developed meningitis 5 days after taking a bath in pond. The likely causative organism ?

a) Meningococcus

b) Cryptococcus

c) Naegleria fowleri

d) Enterococcus

Correct Answer - C

Ans. is 'c' i.e., Naegleria fowleri

[Ref Lippincott's guide to infectious disease p.118]

- Primary amebic meningoencephalitis (PAM) is an acute, fulminant, and rapidly fatal infection involving the central nervous system. It is caused by the parasite *Naegleria fowleri*, a free-living ameboflagellate found in soil and fresh or brackish water (lakes, rivers, ponds)

388. True about trichomonas vaginalis :

a) Flagellated parasite

b) Fungal infection

c) Pruritus

d) A and C both

Correct Answer - D

A and C both

Flagellated parasite; Pruritus; and Sexually transmitted disease

- Trichomoniasis is caused by a flagellated parasite – *Trichomonas vaginalis*.
- It is the most commonly encountered vaginal infection and is sexually transmitted. It affects female of reproductive age group more commonly. Patients complain of profuse frothy thin creamy or greenish coloured malodorous discharge with pruritus.° For

389. Ring forms of babesia differ from ring forms of malarial parasite [plasmodium] ?

a) Infected RBCs are not enlarged

b) Lack pigment

c) Multiple infection is seen

d) Tetrad forms are seen

Correct Answer - B:D

Ans. is 'b' i.e., Lack pigment; 'd' i.e., Tetrad forms are seen [Ref *Essentials of microbiology - 1132*]

- Unlike plasmodium species, rings of babesia lack pigment.
- Tetrad forms [maltese cross] are characteristics of babesia.
- **About option a & c**
- Infected RBCs are not enlarged both in babesia and *P. falciparum*
- Multiple infection of RBCs is common both in babesia & *P falciparum*

390. Population - based registries are better than hospital -based registries because they ?

a) May be used for etiological studies

b) Help in assesing the effectiveness of control programme

c) Measure the burden of disease in a defined population

d) All of these

Correct Answer - D

Ans. is 'a, b & c' i.e., May be used for etiological studies 'b' i.e., Help in assesing the effectiveness of control programme & 'c' i.e., Measure the burden of disease in a defined population

[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. There are two main types of cancer registry : hospital -based and population based cancer registries.

391. WHO definition of health does not include ?

a) Physical health

b) Mental health

c) Environmental health

d) Social health

Correct Answer - C

Ans. is 'c' i.e., Environmental health [Ref Park 23th/e p. 14]

According to **WHO**, "Health is a state of complete **physical, mental** and social well being and not merely an absence of disease or infirmity." In recent years, this statement has been amplified to include "the ability to lead a socially and economically productive life."

392. Daily physical activity/exercise is which type of prevention ?

a) Primordial

b) Primary

c) Secondary

d) Tertiary

Correct Answer - B

Ans. is 'b' i.e., Primary [Ref: Park 23rdie p. 44]

Life style & behavioral changes, e.g. doing exercise is health promotion, a type of primary

393. True about Pasteurization of milk is all except

- a) Does not kill thermoduric bacteria
- b) Does not kill spores
- c) Cause > 95% decrease in bacterial count
- d) Kills tubercle bacillus

Correct Answer - C

Ans. is 'c' i.e., "Causes > 95% decrease in bacterial count

Pasteurization

- Pasteurization is done to destroy the pathogens that may be present in milk, while causing minimal change in the composition. flavour and nutritive value.
 - Pasteurization kills nearly 90% of the bacteria in milk, including the more heat resistant - Tubercle bacilli - Q fever organisms
 - It does not kill the thermoduric bacteria.
 - It does not kill bacteria spores.
- There are 3 widely used methods for pasteurization :**
- 1. Holder method : Milk kept at 63-66°C for 30 minutes is rapidly cooled to 5°C.
 - 2. HTST method : 'High temperature short time' method (Flash method)
 - Heated to 72°C for 15 **sec. and** then rapidly cooled to 4°C
 - This is now the most widely used method.
- method :**
- Ultra-high temperature method.
 - Rapidly heated in **two** stages to **125°C for few seconds.**
 - **The second stage is being under pressure.**
 - **It is then rapidly cooled.**



394. Use of shakirs tape for measuring arm circumference is -

- a) Equitable distributin
- b) Community participation
- c) Intersectoral coordination
- d) Appropriate technology

Correct Answer - D

Ans. is 'd' i.e., Appropriate technology

[Ref Textbook of healthcare in India - 743]

Appropriate technology is defined as 'technology that is scientifically sound, adaptable to local needs, and acceptable to those who apply it and those for whom it is used, and that can be maintained by the people themselves in keeping with the principles of self reliance with the resources the community and country can afford.

395. Quarantine is related to -

a) Minimum incubation period

b) Maximum incubation period

c) Serial interval

d) Generation time

Correct Answer - B

Ans. is 'b' i.e., Maximum incubation period

Quarantine

- Quarantine is defined as "the limitation of freedom of movement of such well persons or domestic animals exposed to communicable disease for a period of time not longer than the longest incubation period of the disease in such manner as to prevent effective contact with those not exposed".
- In simple words "Quarantine separates people who have been exposed to a specific illness (but are not yet sick and don't have symptoms)" from those not exposed".

Why would one be quarantined ?

- Some infection can be transmitted even before a person knows he or she is sick or has any symptoms. How long would one be quarantined ?
- The individual and often the entire family will stay at home until the risk of developing the disease **or** its symptoms is over that means maximum incubation period, because following exposure symptoms develop after incubation period.
- So, if after maximum incubation period for a specific disease, exposed person does not develop disease that means that person has not acquired infection and the person should be allowed to move.

What if one is in quarantine and becomes ill ?

- A quarantined person who develops symptoms associated with the disease in question should immediately contact his/her personal physician and local public health department.
- Once ill, the individual will be considered to be in isolation instead of quarantine.

396. Case series report is a type of ?

a) Analytic study

b) Experimental study

c) Observational study

d) Intervention study

Correct Answer - C

Ans. is 'c' i.e., Observational study [Ref Park 24^m/e p. 67 & 23^e/e p. 62]

A) Observational studies

- .. Descriptive studies : Case reports, case series.
- 2. Analytic studies : Case-control (case-reference), Cohort (follow-up), Ecological (correlational), Cross-sectional.

B) Experimental/intervention studies

- .. Randomized controlled trials/clinical trials.
- 2. Community trials.
- 3. Field trials.
- 1. Animal studies.

397. True about point source epidemic ?

a) Single exposure

b) Rapid rise

c) Slow fall

d) Secondary wave

Correct Answer - A:B

Ans. is 'a & b' i.e., Single exposure & Rapid rise [Ref Park 24th/e p. 69 & 23rd/e p. 64]

Single exposure or point source epidemics

- The exposure to the disease agent is brief and essentially simultaneous - single exposure.
- Because disease agent enters into all exposed persons at same time - the resultant cases all develop within one incubation period of the disease.
- The epidemic curve rises and falls rapidly.
- Because exposure is single (simultaneous) with no further exposure No secondary wave (**no** secondary case).
- Epidemic tends to be explosive, there is clustering of cases within a narrow interval of time.
- Point source epidemics are mostly (not always) due to exposure to an infectious agent.
- Examples Food poisoning, Bhopal gas tragedy, Minamata disease in Japan, Chernobyl tragedy

398. Secular trend is demonstrated by:

a) Line diagram

b) Bar graph

c) Pie chart

d) Stem leaf plot

Correct Answer - A
Line diagram

399. Most important factor which decides the results of a randomized controlled trial is:

March 2005

a) Inclusion of all age groups

b) 50% treated with placebo and 50% with drugs

c) 100% follow up

d) Effective randomization

Correct Answer - D

Ans. D: Effective randomization

It is a procedure by which the participants are allocated into groups usually called 'study' and 'control' groups. Randomization is the heart of control trials.

It eliminates selection bias

400. In a randomized controlled trial, the essential purpose of randomization is -

a) To produce double blinding

b) To decrease the follow- up period

c) To eliminate the selection bias

d) To decrease the sample size

Correct Answer - C

Ans. is 'c' i.e., To eliminate the selection bias

Experimental studies are of two types ?

1. Randomized controlled trials

2. Non - Randomized

Randomized controlled trials (RCT)

- Randomization is the heart of RCT.
- Randomization is a statistical procedure by which the participants are allocated into study group (in which intervention is given) and control group / reference group (in which intervention is not given).
- It is worth noting that randomisation is done while dividing the participants into study group and control (reference) group, and not while selecting subjects for study, i.e. randomization is done after the sample of subjects has already been selected.
- Therefore, each participant has 'equal and known chance' of falling into either study group or control group. o Randomization is an attempt to eliminate bias and allow comparability.
- It will give the greatest confidence that the groups are comparable so that "like" can be compared with "like".
- It ensures that the investigator has no control over allocation of participants to either study or control group, thus eliminating what is known as selection bias.

- That means, by random allocation, every individual gets an equal chance of being allocated into either group, study (experimental) group or control (reference) group.
 - Unit of study in RCT: Patient
- RCT is of two types:**
- Concurrent parallel design: Comparisons are made between 2 groups:**
- Experimental group: Is exposed to specific medication or intervention
 - Reference group: Is not exposed to specific medication or intervention
- Crossover design: Comparisons are made between 2 groups:**
- Experimental group: Is exposed to specific medication or intervention
- Reference group:** Is not exposed to specific medication or intervention Then the groups are crossed-over (exposed group now becomes non-exposed and vice-versa).

401. All are true of standardised mortality ratio except ?

a) Expressed as rate per year

b) Can be adjusted for age

c) Can be used for events other than death

d) Ratio of observed deaths to expected deaths

Correct Answer - A

Ans. is 'a' i.e., Expressed as rate per year

o Standardization is most commonly used for age.

- Standardization can be used not only for age, but also sex, race, parity, etc.

SMR is the ratio of observed death to expected death and it is usually expressed as a percentage. o SMR is *commonly used in occupational studies* for comparison of morality in an industry and general population.

o SMR can be used for occurrence of disease (rather than death).

402. Strain used for BCG vaccine -

a) Edmonston Zagreb strain

b) Oka strain

c) 'Danish' 1331

d) RA 27/3strain

Correct Answer - C
Ans. is 'c' i.e., Danish 1331

403. In a case of meningitis, neisseria meningitides was grown in culture after 48 hours. Which measure is to be taken immediately ?

a) Isolation of contacts

b) Antibiotic treatment of contacts

c) Vaccination of contact

d) All of the above

Correct Answer - B

Ans. is 'b' i.e., Antibiotic treatment of contacts [Ref: Park 24th/e p. 176]

- Close contacts of persons with confirmed meningococcal disease are at an increased risk of developing meningococcal illness.
- Antibiotics are effective in preventing additional cases through eradicating carriage of the invasive strain.
- Most secondary case occur within the first 72 hours after presentation of the index case; risk of secondary disease decreases to near baseline by 10-14 days.
- Antibiotics effective for this purpose include rifampicin, ciprofloxacin, ceftriaxone or azithromycin.

404. For post-exposure prophylaxis, dose of human rabies immunoglobulin is:
September 2007

a) 10 IU/kg

b) 20 IU/kg

c) 30 IU/kg

d) 40 IU/kg

Correct Answer - B

Ans. B: 20 IU/kg

Immunoglobulin should be given in a single dose of 20 IU per kg of body weight for human anti-rabies immunoglobulin, and 40 IU per kg of body weight for heterologous (equine) immunoglobulin.

Sensitivity to heterologous immunoglobulin must be determined before it is administered.

The physician should be prepared to deal with anaphylactic shock reactions.

Administration of rabies immunoglobulin (RIG) should be infiltrated into the depth of the wound and around the wound as much as anatomically feasible. Any remainder should be injected at an intramuscular site distant from that of vaccine inoculation e.g. into the anterior thigh/ gluteal region

Treatment should be started as early as possible after exposure, but in no case should it be denied to exposed persons whatever time interval has elapsed.

405. Which of the following is defined as generalized HIV epidemics ?

a) Prevalence in pregnant women > 0.5 %

b) Prevalence in a population > 0.5 %

c) Prevalence in pregnant women > 1%

d) Prevalence in a population > 1%

Correct Answer - C

Ans. is 'c' i.e., Prevalence in pregnant women > 1% [Ref Park 24th/e p. 361, 363]

Low level HIV epidemics

- HIV prevalence has not consistently exceeded 5% in any defined sub-population.

Concentrated HIV epidemics

- HIV prevalence is consistently over 5% in at least one defined sub-population but is below 1% in pregnant women in urban areas

Generalized HIV epidemics

- HIV prevalence consistently over 1% in pregnant women

406. If in a state prevalence of HIV is 5% in high risk group but in antenatal women it is <1%. The state belongs to ?

a) High prevalence state

b) Moderate prevalence state

c) Low prevalence state

d) Very low prevalence state

Correct Answer - B

Ans. is 'b' i.e., Moderate prevalence state [Ref. Park 23rd/e p. 432 & 22nd/e p. 317]

- Group I (High prevalent states): HIV infection in > 5% high risk group and 1% antenatal women.
- Group II (Moderate prevalent states) : HIV infection in 5% high risk group and < 1% antenatal women.
- Group III (Low prevalent states): HIV infection in < 5% high risk group and < 1% antenatal women.

407. A population of 100000 is under surveillance during an year. 100 cases were positive for malarial thick smear. What is the annual parasite index ?

a) 1 per 1000

b) 2 per 1000

c) 10 per 1000

d) 20 per 1000

Correct Answer - A

Ans. is 'a' i.e., 1 per 1000 [Ref Park 24th le p. 278]

Annual Parasite Incidence = (confirmed cases during one year/population under surveillance) x 1000

Population under surveillance = 100000

Confirmed cases = 100

100

$$\text{API} - \frac{100}{100,000} \times 1000 = 1$$

So, API is 1 per 1000 population.

408. BCG vaccination is given by which route ?

a) Subcutaneous

b) Intradermal

c) Intramuscular

d) Subdermal

Correct Answer - B

Ans. is 'b' i.e., Intradermal [Ref Park 24th/e p. 195 & 23rd /e p. 185]

The routes of important vaccines are :-

1. Subcutaneous : Measles, rubella, killed influenza, killed cholera, IPV, yellow fever.
2. Intramuscular : Mumps, killed influenza, typhoid Vi-polysaccharide, DPT (deep intramuscular), rabies, IPV.
3. Intradermal : BCG, rabies.
4. Nasal : Live influenza.
5. Ora/ : OPV, oral cholera, oral typhoid (typhoral).

409. True about leprosy in India ?

a) Annual new case detection rate 9.73 per 100000

b) Total 8 lac cases

c) Prevalence rate 1.2 per 10000

d) All of the above

Correct Answer - A

Ans. is 'a' i.e., Annual new case detection rate 9.73 per 100000 [Ref Park 24th/e p. 333]

- A total of 1.25 lac new cases were detected during the year 2014-15, which gives annual new case detection rate (ANCDR) of 9.73 per lac population.
- A total of 0.88 lac cases were on record as on P^t April 2015, giving a prevalence rate (PR) of 0.69 per 10,000 population.
- The detailed information on new leprosy cases detected during 2014-15 indicates the proportion of multibacillary cases was 52.82 per cent, proportion of female cases was 36.81 per cent, child case proportion was 9.04 per cent (which gives the child case rate of 0.88 per lac population), 4.59 per cent patient were with grade-II deformity, giving deformity rate of 0.448 per lac population

410. Multidrug Resistance Tuberculosis (MDR-TB) should be considered in patients with:

- a) Contact with a known case of MDR TB
- b) Clinical Deterioration
- c) Sputum smear positive at 5 months of treatment
- d) All of the above

Correct Answer - D

Answer is D (All of the above):

'Infection Control In The community' by Lawrence & May (2003) All of the options require consideration for a diagnosis of MDR – TB.

Mult Drug Resistant Tuberculosis (MDR TB)

MDR-TB is defined by the presence of resistance to both Rifampicin and Isoniazid with or without other resistance

MDR TB should be considered in patients with:

- Previous drug treatment for tuberculosis
- Contact with a case of known MDR TB
- HIV infection
- Failure of clinical response on treatment
- Prolonged sputum smear or culture positive while on treatment (smear positivity at 4 months or culture positivity at 5 months)

411. Commonest cause of blindness in India:

a) Vitamin A deficiency

b) Cataract

c) Trauma

d) Trachoma

Correct Answer - A
Ans. Vitamin A deficiency

412. Waist to hip ratio which indicates obesity in men?

a) > 0.5

b) 0.85

c) > 0.93

d) > 1.0

Correct Answer - D

Ans. is 'd' i.e., > 1.0

Waist-Height ratio (WHtR): It is the best indicator of cardiovascular risk. It is independent of age and sex. Cut-off value is 0.5.

413. Mode of prevention in CHD ?

a) High risk strategy

b) Primordial prevention

c) Secondary prevention

d) Tertiary prevention

Correct Answer - B

Ans. is 'b' i.e., Primordial prevention

Best way to prevent mortality from any disease is to prevent the development of disease.

In case of CHD, primordial prevention is best strategy, which mainly concerns with life style changes.

414. Primordial prevention in myocardial infarction are all except -

a) Maintenance of normal body weight

b) Change in life style

c) Change in Nutritional habits

d) Screening for hypertension

Correct Answer - D

Ans. is 'd' i.e., Screening for hypertension

- Primordial prevention is done even before the development of risk factors.
- Risk factors are not allowed to develop.

In CHD :-

1. Maintenance of normal body weight (prevention of development of obesity).
2. Change in life style.
3. Change in nutritional habits

Similar to previous explanation, there are some tricky situations :?

A) Exercise in a normal built person → Primordial prevention (as we are not allowing to develop risk factor, i.e. obesity).

- Exercise in an obese → Primary prevention (we are modifying the risk factor).

B) Similarly, change in life style or in nutritional habits may be either primordial or primary prevention, depending whether these changes are being done before or after the development of risk factors.

About option 'd'

- This is also tricky one.
- As you all know, screening (early diagnosis) is type of secondary

prevention.

- But screening for hypertension is primary prevention for CHD, because by diagnosis HT early we can modify it.
- So,
- Screening for hypertension Secondary prevention for HT.
 - Screening for hypertension → Primary prevention for CHD (if the person has not developed CHD yet).

415. For diagnosis of diabetes mellitus, fasting blood glucose level should be more than:

a) 126 mg/dl

b) 140 mg/dl

c) 100 mg/dl

d) 200 mg/dl

Correct Answer - A

Answer is A (126mg/dl):

For diagnosis of diabetes mellitus, fasting blood glucose level should be more than or equal to 126 mg/dl or 7mmol/l

416. Western equine encephalitis virus is transmitted by ?

a) Anophales mosquito

b) Culex mosquito

c) Sandfly

d) Aedes mosquito

Correct Answer - B

Ans. is 'B' i.e., Culex mosquito

417. Bimodal distribution is seen in ?

a) Thyroid carcinoma

b) Hodgkins lymphoma

c) Renal carcinoma

d) Liver carcinoma

Correct Answer - B

Ans. is 'b' i.e., Hodgkins lymphoma [*Ref Modern epidemiology p 716*]

- One important phenomenon in age distribution is bimodality, i.e. some disease show two peaks in different age groups. Diseases showing bimodality are Hodgkin's disease, leukaemia, and female breast cancer.

418. Rice is deficient in which amino acid ?

a) Serine

b) Threonine

c) Methonine

d) Cystone

Correct Answer - B

Ans. is 'B' i.e., Threonine *[Ref Read below]*

Cereals (wheat & rice) are deficient in lysine threonine. But in comparison to other cereals protein (e.g wheat) rice protein contains more lysine (though in lesser amounts) → thus rice proteins is considered to be better quality among cereals.

419. Rice protein is deficient in ?

a) Methionine

b) Cysteine

c) Lysine

d) Tryptophon

Correct Answer - C

Ans. is c. i.e., Lysine [*Ref Textbook of protein foods - 55*]

"A rice diet is deficient in lysine and theronine"

420. Endemic ascites cases reported from Madhya Pradesh in 1976 was caused due to:

a) Fusarium

b) Crotalaria

c) Ergot

d) Aflatoxin

Correct Answer - B

Endemic ascites was caused due to contamination of millets with **crotalaria (jhungunia)** seeds which contain hepato toxins such as **pyrrolizidine**.

Ref: Park 21st edition, page 608.

421. Reagent used to detect the microorganism in milk before pasteurization ?

a) Crystal violet

b) Methylene blue

c) Phosphatase

d) Nitric acid

Correct Answer - B

Ans. is 'b' i.e., Methylene blue [Ref Park 24th/e p. 692 & 23rd/e p. 655]

- Methylene blue Reduction test' is an indirect test for detection of microorganism in milk. It is carried out on milk prior to the process of pasteurization and is not used to check the efficiency of pasteurization.
- Test to check the adequacy (efficiency) of pasteurization are : Phosphatase test (m.c. used), standard plate count, and coliform count.

422. Acceptable noise level in industries ?

a) 25-30 dB

b) 30-40 dB

c) 40-50 dB

d) 60-80 dB

Correct Answer - C

Ans. is 'c' i.e., 40 50 dB

423. Replacement & periodic examination in radiation industry is recommended ?

a) Every month

b) Every 2 months

c) Every 6 months

d) Every year

Correct Answer - B

Ans. is 'b' i.e., Every 2 months [*Ref Park 24th/e p. 846*]

Preventive measures in radiation industries

- Inhalation, swallowing or direct contact with the skin should be avoided.
- In case of X-rays, shielding should be used of such thickness and of such material as to reduce the exposure below allowable exposures.
- The employees should be monitored at intervals not exceeding 6 months by use of the film badge or pocket electrometer devices.
- Suitable protective clothing to prevent contact with harmful material should be used.
- Adequate ventilation of work-place is necessary to prevent inhalation of harmful gases and dusts.
- Replacement and periodic examination of workers should be done every 2 months. If harmful effects are found, the employees should be transferred to work not involving exposure to radiation.
- Pregnant women should not be allowed to work in places where there is continuous exposure.

424. True about mosquito preventive nets are all except?

a) Hole size < 0.0475

b) 150 holes per square inch

c) Best pattern in circular

d) There should be no rent

Correct Answer - C

Ans. is 'c' i.e., Best pattern is circular [Ref Park 24th/e p. 810 & 23rd/e p. 773]

- The best pattern of mosquito net is the rectangular net.
- There should not be a single rent in the net.
- The Size of openings in the net is of utmost importance, the size should not exceed 0.0475 inch in any diameter.
- The number of holes in one square inch is usually 150..

425. Process of mixing waste with cement before disposal is known as ?

a) Inertization

b) Controlled tipping

c) Sanitary landfill

d) Burial

Correct Answer - A

Ans. is 'a' i.e., Inertization [Ref Safe management of wastes from health-care activities - 126]

- The process of inertization involves mixing waste with cement and water substances before disposal to minimize the risk of toxic substances contained in the waste migrating into surface water or groundwater. It is especially suitable for pharmaceuticals and for incineration ashes with a high metal content (in this case, the process is also called "stabilization").

426. If 25 persons are working on a project for 30 years. There is how many person-years of employment.

a) 75

b) 750

c) 120

d) 1200

Correct Answer - B

Ans. is 'b' i.e., 750 [Ref Textbook of gross development in employment - 121]

- "10000 people working for 1 year would lead to 1000 person years of employment"
- Thus, 25 persons working for 30 years will lead to 750 person-years of employment.

427. Community development block covers a population of?

a) 3000-5000

b) 20000-30000

c) 30000-50000

d) 80000-120000

Correct Answer - D

Ans. is 'd' i.e., 80000-120000 [Ref: Textbook of preventive & community dentistry - 175]

- At present a community development block covers an area of about 620 sq km with around 100 villages and a population of about 100000 (80000 - 120000).

428. Which of the following conditions must be fulfilled for a PHC to become a first referral unit ?

a) 4-6 beds

b) 15 workers

c) Emergency obstetric care

d) Basic laboratory services

Correct Answer - C

Ans. is 'c' i.e., Emergency obstetric care [Ref Textbook of Indian Health care - 728]

Critical determinants of a first referral unit

- 24-hour delivery services including normal and assisted deliveries
- Emergency obstetric care including surgical interventions like caesarean sections and other medical interventions, New-born care, Emergency care of sick children, Full range of family planning services including laproscopic services, Safe abortion services, Treatment of STI / RTI, Blood storage facility, Essential laboratory services, Referral (transport) services.

429. Number of beds in a CHC is:
March 2010

a) 20

b) 30

c) 40

d) 50

Correct Answer - B
Ans. B: 30

430. Community health centers provide ?

a) Primary health care

b) Secondary health care

c) Tertiary health care

d) Any of the above

Correct Answer - B

Ans. is 'b' i.e., Secondary health care [*Ref Park 23/e p. 904*]

431. Training period for anganwadi worker ?

a) 3 months

b) 4 months

c) 6 months

d) 1 year

Correct Answer - B

Ans. is 'b' i.e., 4 months

- Anganwadi workers are under ICDS scheme.
- There is an anganwadi worker for a population of 400-800 in plains and 300-800 in hilly/tribal areas.
- She undergoes training in various aspects of health, nutrition and development for 4 months.
- She is a part-time worker.
- She is paid an honorarium of Rs. 1500 per month.

432. World diabetes day is celebrated on ?

a) 8th may

b) 8th march

c) 14th November

d) 1st december

Correct Answer - C

Ans. is 'c' i.e., 14th November

- 8 May → World Red Cross Day
- 8th March → International Women's Day
- 14th November → World Diabetes Day
- 1st December → World AIDS Day

433. Used urine bags are disposed in which color bag ?

a) Red

b) Yellow

c) White

d) Black

Correct Answer - A

Ans. is 'a' i.e., Red [Ref: *Imanh. org*]

- Contaminated recyclable wastes are disposed in which red color bag. These are tubing, bottles, IV tubes, IV sets, catheters, urine bags, syringes (without needles) and vaccutainers (with their needles cut) and gloves.

434. Ergonomics?

a) Adjusting the Worker to his job

b) Study of human behavior

c) Study of social mobility

d) None

Correct Answer - A

Ans. is 'a' i.e., Adjusting the Worker to his job

Ergonomics Simply means *"fitting the job to the worker"*.

The object of ergonomics is *"to achieve the best mutual adjustment of man and his work, for the improvement of human efficiency and well being"*.

435. Which of the following is not a fundamental aspect of Disaster management ?

a) Disaster response

b) Disaster mitigation

c) Disaster awakening

d) Disaster preparedness

Correct Answer - C

Ans. is `c' i.e. Disaster awakening

436. Not a copper containing IUD ?

a) CuT-200

b) Nova -T

c) Multiload-250

d) LNG-20

Correct Answer - D

Ans. is `d i.e., LNG-20

LNG-20 is third generation IUD which does not contain copper.

Other three options are 2nd generation (copper containing) IUDs.

437. Failure rate of contraceptive method is determined by-

a) Pearl index

b) Half 1 ife

c) Number of accidental pregnancies

d) Period of contraceptive practice continued

Correct Answer - A

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

Pearl index

o Contraceptive methods are evaluated by Pearl index

Pearl index is "failure rate per hundred women years of exposure (HWY)"

$$\text{Failure rate per HWY} = \frac{\text{Total accidental pregnancies}}{\text{Total months of exposure}} \times 1200$$

o In applying the above formula, the *total accidental pregnancies shown in the numerator, must include every known conception, whatever its outcome*. The factor 1200 is the number of months in 100 yrs.

o A failure rate of 10 per HWY would mean that in the lifetime of an average women *about one fourth or 2.5 accidental pregnancies would result*, since the average fertile period of a women is about 25 yrs.

438. Denominator for maternal mortality rate is:
September 2005, 2010, March 2013 (d, e, h)

a) 100,000 pregnancies

b) 100,000 live births

c) 100,000 births

d) 100,000 population

Correct Answer - B

Ans. **B:** 100,000 live births

The maternal mortality rate is the number of maternal deaths due to childbearing per 100,000 live births. The crude death rate is the total number of deaths per year per 1000 people.

The perinatal mortality rate is the sum of neonatal deaths and fetal deaths (stillbirths) per 1000 births. The infant mortality rate is the number of deaths of children less than 1 year old per 1000 live births.

The child mortality rate is the number of deaths of children less than 5 years old per 1000 live births.

The standardised mortality rate (SMR)- This represents a proportional comparison to the numbers of deaths that would have been expected if the population had been of a standard composition in terms of age, gender, etc.. The age-specific mortality rate (ASMR) - This refers to the total number of deaths per year per 1000 people of a given age (e.g. age 62 last birthday).

439. Birth & death in India should be registered within?

a) 7 days

b) 14 days

c) 21 days

d) 30 days

Correct Answer - C

Ans. is 'c' i.e., 21 days [Ref Park 24thie p. 877 & 23rd/e p. 840; IRS-2009]

Birth	21 days
Death	21 days
Marriage	30 days
Pregnancy	NO LEGISLATION YET

440. ESI act does not cover which of the following:
September 2010

a) Hotel employee

b) Transpoters

c) Railway employees

d) Factory employees

Correct Answer - C

Ans. C: Railway employees

This act covers all employees including engaged through the contracts but whose remuneration does not exceed Rs. 10, 000 p.m. including staff in the class of administrative, canteen, loading-unloading, security, etc.

Apprentices who are appointed for learning the work with no right of being absorbed in service, do not come with the ambit of this act.

441. Goal is defined as ?

- a) Planned end-point of all activities
- b) Planned discrete activity for the programme
- c) Ultimate desired state
- d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Ultimate desired state [Ref Park 23rd/e p. 868]

- A goal is defined as the *ultimate desired state* towards which objectives are directed. Goals are *not necessarily attainable*. Unlike objectives and targets, goals are not constrained by time or existing resources.

442.

Not a part of bony labyrinth?

a) Cochlea

b) Vestibule

c) Utricle

d) Semicircular canal

Correct Answer - C

The inner ear within the *petrous part of temporal bone* consists of a membranous labyrinth enclosed in a bony (osseous) labyrinth. So, inner ear has two parts : ?

1) *Bony labyrinth* :- Cochlea, Vestibule, Semicircular canals.

2) *Membranous labyrinth* :- Cochlear duct, utricle, Saccules, three semicircular ducts, and endolymphatic duct & sac.

443. Cells of the Organ of Corti which are vulnerable to noise induced damage are ?

a) Inner hair cells

b) Outer hair cells

c) Deiter's cells

d) Cells of Hensen

Correct Answer - B

Ans. is 'b' i.e., Outer hair cells

444. Reissner membrane separates:

a) Scala Vestibuli from Scala media

b) Scala tympani from scale Vestibuli

c) Scala tympani from Scala media

d) None of the above

Correct Answer - A

Reissner membrane separates scala vestibule from scala media.

445. Bleeding ear discharge is mostly due ?

a) Glomus tumour

b) Otosclerosis

c) Otitis media with effusion

d) Acoustic neuroma

Correct Answer - A

Ans. is'a'i.e., Glomus tumour

(Ref: Dhingra 6h/e p. 109)

446. Progressive loss of hearing, tinnitus and ataxia are commonly seen in a case of:

a) Otitis media

b) Cerebral glioma

c) Acoustic neuroma

d) Ependymoma

Correct Answer - C

Ans. C. Acoustic neuroma

447. A 15 year old male has nominal aphasia. There is also history of scanty, foul smelling discharge in the past. The patient reports of some bleeding when cleaning the ear. Which of the following is the most likely diagnosis?

a) Extradural abscess

b) Temporal lobe abscess

c) Cavernous thrombosis

d) Lateral sinus thrombophlebitis

Correct Answer - B

Ans. is'b'i.e., Temporal lobe abscess

lRef: Dhingra Sh/e p. 85

Otogenic brain abscess

- Ear infections are the most common cause of brain abscess.
- Most common site of cerebral abscess is temporal lobe.
- Due to increased ICT.
- Headache
- Nausea/vomiting
- Lethargy progressing to drowsiness, confusion, stupor and coma.

448. In serous otitis media, which one of the following statements is true?

a) Sensorineural deafness occurs as a complication in 80% of the cases

b) Intracranial spread of the infection complicates the clinical courses

c) Tympanostomy tubes are usually required for treatment

d) Gram-positive organisms are grown routinely in culture in the aspirate

Correct Answer - C

Ans. C tympanostomy tubes are usually required for treatment

Lets see at the options one by one:

Serous otitis media:

Option a

Sensori neural deafness occurs as a complication in 80% of cases
This is not correct because serous otitis media leads to conductive type of hearing loss.

Option b

Intracranial spread of the infection complicates the clinical course

.. This is not true as complications of serous otitis media are:

2. Adhesive otitis media
3. Atrophy of tympanic membrane
4. Tympanosclerosis (chalky white deposits seen on. membrane)
5. Atelectasis of middle ear
6. Ossicular necrosis
7. Cholesteatoma due to retraction pockets
8. Cholesterol granuloma due to stasis of secretions

Option c

- .. Tympanostomy tubes are usually required for treatment:
- 2. This is quite correct as myringotomy and aspiration of middle ear effusion without ventilation tube/Tympanostomy tube/ grommet insertion has a short lived benefit and is not-recommended
- 3. Hence if otitis media with effusion or serous OM is not resolved spontaneously, tympanostomy tube is inserted.

Option d

- .. Gram positive organisms are grown routinely in culture in the aspirate
- 2. Absolutely incorrect because fluid collection in serous otitis media is sterile

449. Most common cause of congenital sensorineural hearing loss ?

a) Parvovirus

b) CMV

c) Rubella

d) Toxoplasmosis

Correct Answer - B

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

[Rel paediatric Otolaryngology p. 78]

- Cytomegalovirus -+ Most common viral cause of congenital viral deafness
- Mumps -+ Most common cause viral of acquired sensorineural hearing loss.

450. In cavernous sinus thrombosis, first nerve to be affected is:

September 2012

a) 6th

b) 5th

c) 4th

d) 3rd

Correct Answer - A

Ans. A i.e. 6th

451. Prolonged blockade of Eustachian tube leads to ?

a) Atelectatic ear

b) Cholesteatoma

c) Perforation

d) All of the above

Correct Answer - D

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

[Rf Dhingra 6h/e p. 60)

- Acute tubal blockage → Absorption of ME gases → Negative Pressure in ME → Retraction of TM → Transudate in ME/haemorrhage (acute OME) → Prolonged tubal blockage/dysfunction → OME (thin watery or mucoid discharge) → Atelectatic ear/Perforation → Retraction pocket/cholesteatoma

452. Cottle test is positive in case of ?

- a) Deviated Nasal septum
- b) Rhinosporidiosis
- c) Hypertrophied inferior nasal turbinate
- d) Atrophic rhinitis

Correct Answer - A

Cottle test : It is used to test nasal obstruction due to abnormality of nasal valve as in case of deviated nasal septum.

In this test, cheek is drawn laterally while the patient breathes quietly. If the nasal airway improves on the test side, the test is positive, and indicates abnormality of the vestibular component of nasal valve.

453. Most common cause of nasal polyp in children is?

a) Human papilloma virus

b) Allergic rhinitis

c) Inverted papilloma

d) Rhinosporidiosis

Correct Answer - B

Ans. is'b'i.e., Allergic rhinitis

Re/ BRS Gross Anatomy p' 405)

- The most common cause of nasal polyp is allergic rhinitis'
- Nasal polyps are not particularly common in children.
- Occasionally so-called "allergic PolyPs" are encountered' and occasionally recurrent bouts of allergy and infection lead to chronic hypertrophic polypoid rhinosinusitis.
- However' most commonly when nasal polyps are encountered in children, the underlying problem is cystic fibrosis'

454. Le Forte II facial fracture implies -

- a) Fracture running through alveolar ridge
- b) Fracture running through midline of the palate and zygomatico maxillary suture
- c) Fracture running through zygomatic process of the maxilla, floor of orbit, root of nose on one side only
- d) Similar to C but on both sides

Correct Answer - D

Ans. is 'd' i.e., Similar to C but on both sides

Le Fort Classification of Mid-face #s

- Le Fort I (transverse fracture)
the # line runs above & parallel to the palate and effectively separates the alveolus and palate from the facial skeleton above. it crosses the lower part of the nasal septum, maxillary antra and the pterygoid plates.
- Le Fort II fracture
it is pyramidal in shape and passes through the root of nose, lacrimal bone, floor of orbit, upper part of maxillary sinus and pterygoid plates. the orbital floor is always involved
- Le Fort III fracture (craniofacial dysjunction) there is complete separation of facial bones from the cranial bones.
the # line runs high through the nasal bridge, septum and ethmoids, and through the bones of orbit to the frontozygomatic suture. The zygomatic arch fractures and the facial skeleton is separated from the bones above at a high level through the lateral wall of maxillary sinus and the pterygoid plates.

455. Juvenile nasopharyngeal angiofibroma spreading to pterygomaxillary fossa is which stage?

a) Stage I

b) Stage II

c) Stage III

d) Stage IV

Correct Answer - B

Ans. is .b, i.e., Stage II

lRef: Neuroradiologlt by Zimmerman p. 455; CT and MRI of the Whole Boily Shle p' 6101

- IA -+ Tumor limited to posterior nares or nasopharyngeal vault
- IB + Extension into one or more Paranasal sinuses
- IIA -+ Minimal lateral extension through sphenopalatine foramen into medial pterygomaxillary fossa.
- IIB + Full occupation of pterygomaxillary fossa, di-splacng posterior wall of antrum forward; superior extension eroding orbital bones.
- IIC + Extension tt roogi ptetygomoilary fossa into cheek and temporal fossa
- III -+ Intracranial extension

**456. Regarding Juvenile 1,7ngeal
papillomatosis, false is ?**

a) Recurrent

b) Interferon is used in treatment

c) Premalignant

d) HPV 18 is the causative agent

Correct Answer - D

Ans. is 'd' i.e., HPV 18 is the causative agent [

(Ref Nelson 18n/e p' 1772; Dhingra 6h/e p' 449)

- Juvenile papilloma (Recurrent laryngeal papillomatosis/Recurrent respiratory papillomatosis)
- Recurrent Respiratory Laryngeal Papillomatosis is a disease of viral origin characterized by the presence of multiple recurrent papillomas in the larynx.
- The disease is common in anterior part of glottis, especially anterior commissure.

Etiology:

- Associated with Human Papilloma Virus infection (HpV).
- HPV6 and HPV 11 are most commonly associated with laryngeal disease.
- HPV 11 is associated with a more aggressive disease and makes the patient more prone to malignant change.

457. Most common presentation in nasopharyngeal carcinoma:

a) Epistaxis

b) Hoarseness of voice

c) Nasal stuffiness

d) Cervical lymphadenopathy

Correct Answer - D

Cervical lymphadenopathy is the M/C presentation of nasopharyngeal carcinoma. It may be the only manifestation in some cases.

458. Which of the following is not a feature of chronic tonsillitis?

a) Fever

b) Halitosis

c) Recurrent attacks of sore throat

d) Choking spells at night

Correct Answer - A

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

(ref Dhingra 6h/e p. 258]

- Fever is a symptom in case of acute tonsillitis, not chronic tonsillitis.
- **Chronic tonsillitis is characterized by:-**
- Recurrent attacks of sore throat or acute tonsillitis.

459. Treatment of early cases of vocal nodules is ?

a) Excision

b) Laser Ablation

c) Voice therapy

d) Tissue sampling followed by definitive therapy

Correct Answer - C

Ans. is 'c' i.e., Voice therapy

[Ref: Dhingra & e p. 3031]

- Early cases of vocal nodules can be treated conservatively by educating the patient in proper use of voice.
- Many nodules especially in children, disappear with this treatment'
- Surgery is required for large nodules or long standing nodules in adults.
- Microscopic (microlaryngoscopic) erosion is the treatment of choice,

460. Structures removed in vertical partial laryngectomy are all except ?

a) True cord

b) Epiglottis

c) Arytenoid

d) Thyroid cartilage

Correct Answer - B

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

(Ref' ENT by Michaels p' 307

Partial Vertical laryngectomy :

- Used to remove carcinoma confined to or with little spread from the true vocal cord.

Structures removed are:

1. Whole vocal cord on the affected side, including the carcinoma
2. Ipsilateral arytenoid cartilage
3. Adjacent part of ipsilateral thyroid cartilage
4. Part of the adjacent cricoid cartilage, if there is some subglottic spread.

461. All the following can cause mouth ulcers except ?

a) Sickle cell anemia

b) Lichen planus

c) Mouth washes

d) Psoriasis

Correct Answer - D

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

(IRef Dhingra &/e p. 217)

462. True statement about oral cancer is/are:

a) Most common in buccal mucosa

b) Systemic metastasis uncommon

c) Responds to radiotherapy

d) b and c

Correct Answer - D

Ans. D. b and c

463. Which of the following is the feature of aphthous ulcer?

a) Recurrent

b) Genital ulcer

c) Malignant

d) Old age

Correct Answer - A

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

(Ref: Dhingra eh/e p. 218)

- Aphthous ulcers are small ulcer craters in the lining of the mouth that are frequently painful and sensitive.
- Characterized by recurrent, small, round or oval ulcers with circumscribed margins, erythematous haloes, and yellow or gray floor.

464. Schatzki's Ring is present at ?

a) Upper end of trachea

b) Lower end of trachea

c) Upper end of esophagus

d) Lower end of esophagus

Correct Answer - D

Ans. is 'd' i.e., Lower end of esophagus

Schatzki's ring

- It occurs at the junction of squamous and columnar epithelium at the lower end of oesophagus and has also been called **lower oesophageal ring**.
- Usually seen in patients above 50 years of age.
- Cause is unknown.
- Symptomatic patients complain of intermittent dysphagia and some may even present with bolus obstruction.
- It may be associated with hiatus hernia.
- Treatment is oesophageal dilatation.

465. In which one of the following conditions the sialography is contraindicated

a) Ductal calculus

b) Chronic parotitis

c) Acute parotitis

d) Recurrent sialadenitis

Correct Answer - C

Ans. is 'c' i.e. Acute parotitis

"Sialography is contraindicated in acute sialadenitis (includes parotitis) for fear of exacerbating the condition." -Sutton

466. Incision used in endomeatal approach to the ear ?

a) Lempert I incision

b) Lempert II incision

c) Rosen's incision

d) Wilde's incision

Correct Answer - C

Ans. is 'C i.e., Rosen's incision

(Ref Dhingra @/e p. 400)

Endomeatal or transcanal approach.

- It is used to raise a tympanomeatal flap in order to expose the middle ear.
- Rosen's incision is the most commonly used lot stapedectomy.

467. FESS means:

a) Factual endoscopic sinus surgey

b) Functionl endonasal sinus surgery

c) Factual endonasal sinus surgery

d) Functionl endoscopic sinus surgery

Correct Answer - D

Indications of FESS

i) Chronic bacterial sinusitis unresponsive to adequate medical treatment.

ii) Recurrent acute bacterial sinusitis.

iii) Polypoid rhinosinusitis (diffuse nasal polyposis)

w) Fungal sinusitis with fungal ball or nasal polyp

v) Antrochoanal polyp and Ethmoid polyp

vi) Mucocele of frontoethmoid or sphenoid sinus.

vii) Control of epistaxis by endoscopic cautery.

viii) Removal of foreign body from the nose or sinus

ix) Endoscopic septoplasty.

x) Removal of benign tumours, e.g. inverted papillomas or anfibromas.

xi) Orbital abscess or cellulitis nonagenet.

xii) Dacryocystorhinostomy.

xiii) Repair of CSF leak,

xiv) Pituitary surgery

xv) Optic nerve decompression.

xvi) Orbital decompression for Graves disease-

xvii) Control of posterior epistaxis (endoscopic clipping of sphenopalatine artery).

xviii) Choanal atresia.

468. The structure damaged in High Tracheostomy ?

a) Thyroid isthmus

b) Aortic knuckle

c) First tracheal ring

d) Recurrent laryngeal nerve

Correct Answer - C

Ans. is 'c' i.e., First tracheal ring

(Ref: Dhingra dle p' 317)

- High tracheostomy: Performed above the level of thyroid isthmus which lies against II, III and IV tracheal rings:
- Indicated in carcinoma larynx when laryngectomy is anticipated.
- Drawback : tracheostomy at this point violates the 1st ring of trachea and causes perichondritis of the cricoid cartilage and subglottic stenosis, so it is better avoided.

469. Optic nerve glioma is associated with

a) Sturge Weber Syndrome

b) Neurofibromatosis I

c) VKH Syndrome

d) Von Hippel Lindau Syndrome

Correct Answer - B

Answer- B. Neurofibromatosis I

- Optic nerve glioma (astrocytoma) is the most common intrinsic tumor of the optic nerve. Most common type of optic nerve glioma is juvenile pilocytic astrocytoma.
- Optic nerve gliomas are associated with Neurofibromatosis-I (Von Recklinghausen's disease)

470. With accommodation at rest, total refractory power of crystalline lens is

a) 14D

b) 16D

c) 18D

d) 20D

Correct Answer - B

Answer- B. 16D

- The dioptric power of reduced eye is + 60D, of which + 44D is contributed by cornea and + 16D by the crystalline lens.

471. Volume of orbit is

a) 19 ml

b) 29 ml

c) 39 ml

d) 49 ml

Correct Answer - B

Answer- B. 29 ml

Volume of each orbit is 29 ml.

- Orbit is made up of 7 bones: frontal, ethmoid, lacrimal, palatine, maxilla, zygomatic and sphenoid

472. Anterior focal point is at distance of in front of cornea in recuded eye

a) 22.6 mm

b) 17.2 mm

c) 15.7 mm

d) 24.13 mm

Correct Answer - C

Answer- C. 15.7 mm

Anterior Focal Point- 15.7 mm

473. Distance between nodal point and cornea in Listing's Reduced eye is

a) 7.2mm

b) 9mm

c) 12mm

d) 15.3mm

Correct Answer - A

Answer- A. 7.2mm

Nodal Point- 7.2 mm behind the anterior corneal surface

474. Which intraocular muscle inserts closest to limbus

a) Lateral Rectus

b) Medial Rectus

c) Superior Rectus

d) Inferior Rectus

Correct Answer - B

Answer- B. Medial Rectus

Medial rectus -Distance of insertion from limbus- 5.5 mm

475. Hyphaema i.e. blood in the anterior chamber is suggestive of

a) Intraocular trauma

b) Posterior uveitis

c) Capillary hemangioma of the lid

d) High grade myopia

Correct Answer - A

Answer- A. Intraocular trauma

Etiology of hyphaema

- The most common causes of hyphema are intraocular surgery, blunt trauma, and lacerating trauma.
- Hyphemas may also occur spontaneously, without any inciting trauma

476. A 30 year old female wears contact lens for 2 months continuously. The symptoms she experiences thereafter could be due to all except

a) Giant Papillary conjunctivitis

b) Microbial keratitis

c) Increased sensitivity

d) Open angle glaucoma

Correct Answer - D

Answer- D. Open angle glaucoma

- Corneal complications : - Corneal abrasion, Corneal edema, Corneal vascularization, Microbial keratitis (pseudomonas, acanthamoeba), Sterile corneal infiltrate
- Giant papillary conjunctivitis
- Hypoxia : - Cornea is deprived of oxygen from the tear film by the presence of the contact lens. The cornea becomes edematous and new vessels may develop in the limbal area.

477. Swimmer after coming out from swimming pool presents with redness and mucopurulent discharge. There is no history of contact lens wear. On examination, no corneal involvement seen. Probable diagnosis is

a) Acanthamoeba keratitis

b) Adult inclusion conjunctivitis

c) Vernal keratoconjunctivitis

d) Angular conjunctivitis

Correct Answer - B

Answer- B. Adult inclusion conjunctivitis

- is a type of follicular conjunctivitis caused by serotypes D to K of chlamydia trachomatis in sexually active young adults.
- Transmission may occur either through contaminated fingers or through contaminated water of swimming pools (Swimming pool granuloma).

478. KISA% is associated with

a) Keratoconus

b) Keratoglobus

c) Hypermetropia with astigmatism

d) Terrien's marginal degeneration

Correct Answer - A

Answer- A. Keratoconus

The KISA index is used in cases of keratoconus and is derived using 4 indices:

1. Central keratometry K
2. Inferior- Superior keratometry (I-S)
3. Astigmatism Index (AST)

479. What is deposited in band keratopathy

a) CaSO_4

b) CaPO_4

c) MgSO_4

d) MgPO_4

Correct Answer - B

Answer- B. CaPO_4

- Band keratopathy is characterized by the deposition of calcium and phosphorus salts (especially hydroxyapatite) in a bandlike pattern in the anterior layers of the cornea. The keratopathy is usually limited to the interpalpebral area. Symptoms include irritation, injection, and blurring of vision.
- Chronic eye diseases (most common cause)

480. Ciliary staphyloma affects ciliary zone upto mm behind the limbus

a) 4

b) 6

c) 8

d) 10

Correct Answer - C

Answer- C. 8

- Staphyloma is an abnormal protrusion of uveal tissue through a weak and thin portion of cornea or sclera. So, a staphyloma is lined internally by uveal tissue and externally by weak cornea or sclera.
- Ciliary staphyloma : - This affects the ciliary zone that includes the region upto 1 mm behind the limbus. The ciliary body is incarcerated in the region of scleral ectasia. Causes are Developmental glaucoma, Primary or secondary glaucoma end stage, scleritis, trauma to ciliary region.

481. In complicated cataract opacity develops in

a) Anterior capsule

b) Nucleus

c) Posterior subcapsular

d) Cortical

Correct Answer - C

Answer-C. Posterior subcapsular

- Complicated cataract refers to the lens opacification secondary to some other intraocular disease, Anterior uveitis is the most common cause.
- Posterior cortical complicated cataract : - This type of cataract is due to affections of posterior segment. This cataract is located in a posterior subcapsular cataract and typically opacification starts in the posterior part of the cortex in the axial region.

482. Most common method of anterior capsulotomy in phacoemulsification

a) Can-opener capsulotomy

b) Intercapsular capsulotomy

c) Capsulorhexis

d) Envelop capsulotomy

Correct Answer - C

Answer- C. Capsulorhexis

- The most commonly used technique for anterior capsulotomy during phacoemulsification is continuous curvilinear capsulorhexis (CCC).

483. SRK formula is used to calculate

a) Power of intraocular lens

b) Corneal curvature

c) Corneal endothelial cell count

d) Extent of retinal detachment

Correct Answer - A

Answer- A. Power of intraocular lens

Intraocular lens power calculation :- Which requires Keratometry (K), Axial length of eyeball or Biometry (L) and a

constant (A). It is calculated by SRK formula:

- Power of IOL= $A - 2.5L - 0.9K$

484. Trabeculectomy for glaucoma leads to formation of a channel between

a) Subconjunctival space and anterior chamber

b) Anterior chamber and Posterior chamber

c) Subconjunctival space and posterior chamber

d) None of the above

Correct Answer - A

Answer- A. Subconjunctival space and anterior chamber

- Trabeculectomy is a surgical procedure used in the treatment of glaucoma to relieve intraocular pressure by removing part of the eye's trabecular meshwork and adjacent structures.
- It is the most common glaucoma surgery performed and allows drainage of aqueous humor from the anterior chamber to underneath the conjunctiva where it is absorbed.

485. Sudden acute loss of vision with shallow anterior chamber is suggestive of

a) Acute angle closure glaucoma

b) Acute iridocyclitis

c) Open angle glaucoma

d) Viral keratitis

Correct Answer - A

Answer- A. Acute angle closure glaucoma

Lid edema

- Conjunctiva is chemosed and congested (both conjunctival & ciliary vessels are congested) o Cornea is oedematous and insensitive Anterior chamber is very shallow & with aqueous flare Angle of anterior chamber is closed (on gonioscopy) Iris is discoloured.
- Optic disc is oedematous & hyperemic Fellow eye shows shallow anterior chamber and a narrow angle.

486. Tertiary vitreous is represented by

a) Zonular system

b) Ciliary body

c) Anterior uvea

d) Lens

Correct Answer - A

Answer- A. Zonular system

- "Tertiary vitreous indicates the zonular system. The primary and secondary vitreous are stages in development of vitreous,
- However the tertiary vitreous i.e. the zonules are named so only because of their proximity to the vitreous.

487. Mittendorf dot is found on

a) Anterior capsule of lens

b) Posterior capsule of lens

c) Vitreous

d) Retina

Correct Answer - B

Answer- B. Posterior capsule of lens

- During the development of eye there is a blood vessel which runs between the optic nerve and the back of the lens, called hyaloid vessel. This vessel carries nutrients and oxygen to the developing parts of the anterior section of eye. This hyaloid vessel along with surrounding embryonic material is called primary vitreous. Hyaloid vessels and primary vitreous begin to involute in the second month of gestation giving way to the secondary vitreous (the vitreous humor). Small remnants of the system are common findings in healthy adults, e.g. Bergmeister papilla (tuft of tissue at the optic disc) and Mittendorf dot (tag of tissue on the posterior capsule of lens). However extensive remnants of this "hyaloid vessel - primary vitreous" system are called persistent hyperplastic primary vitreous.

488. Smoke stake pattern is characteristic of?

a) Sickle cell retinopathy

b) Sarcoidosis

c) Acute retinal necrosis

d) Central serous retinopathy

Correct Answer - D

Answer- D. Central serous retinopathy

- Smoke stack pattern (small hyper fluorescent spot which ascends vertically like a smoke-stack), which gradually spreads
- laterally to take a mushroom or umbrella configuration, is a Fundus Fluorescein Angiography (FFA) finding of Central
- Serous Retinopathy.

489. Condition where subhyloid hemorrhage is associated with subarachnoid hemorrhage is

a) Posner-Schlossman syndrome

b) Axenfeld-Rieger syndrome

c) Pseudoexfoliation syndrome

d) Terson's syndrome

Correct Answer - D

Answer- D. Terson's syndrome

- Terson syndrome is intraocular hemorrhage associated with subarachnoid hemorrhage, intracerebral hemorrhage or traumatic brain injury. Hemorrhage may be present in the vitreous, sub-hyloid, or intraretina/ sub-internal limiting membrane.
- Subarachnoid hemorrhage may be directly transmitted forward through the optic nerve sheath.

490. A 30 year old male came with complains of unilateral blurred vision with floaters since 15 days. On examination, AC flare and cells were seen with 'headlight in fog' appearance on indirect ophthalmoscopy. Also, a single inflammatory focus of fluffy retinochoroiditis lesion is seen. What is the diagnosis ?

a) Cytomegalovirus retinitis

b) Toxoplasmosis chorioretinitis

c) Toxocariasis

d) Sarcoidosis

Correct Answer - B

Answer- B. Toxoplasmosis chorioretinitis

Toxoplasmosis is caused by Toxoplasma gondii, an obligate intracellular protozoan.

- Symptoms: Unilateral acute or subacute onset of floaters, blurring and photophobia.
- 'Spill-over' anterior uveitis is common. It may be granulomatous or resemble Fuchs uveitis syndrome; elevated IOP may develop.
- Vitritis may be severe and impair fundus visualization. 'Headlight in the fog' is the classic description of a white retinal inflammatory nidus viewed through vitritis.

491. Circinate retinopathy is seen in

a) Diabetic Retinopathy

b) Hypertensive Retinopathy

c) Best Disease

d) Stargardt's Disease

Correct Answer - A

Answer- A. Diabetic Retinopathy

- Circinate retinopathy is a feature of Diabetic Retinopathy. It is a feature of diabetic macular edema.
- Circinate retinopathy a condition marked by a circle of white spots enclosing the macular area, leading to complete foveal blindness.

492. Asteroid Hyalosis bodies are composed of

a) Iron

b) Calcium and phosphates

c) Cadmium and chloride

d) None

Correct Answer - B

Answer- B. Calcium and phosphates

- Asteroid hyalosis is a degenerative condition of the eye involving small white opacities in the vitreous humor.
- The asteroid bodies are made up of hydroxyapatite, which in turn consists of calcium and phosphates.

493. What is the length of optic nerve

a) 20 mm

b) 30 mm

c) 40 mm

d) 50 mm

Correct Answer - D

Answer- D. 50 mm

optic nerve is about 47-50 mm in length and can be divided into 4 parts : -

- Intraocular part (1 mm)
- Intraorbital part (30 mm)
- Intracanalicular part (5-9 mm)
- Intracranial part (10 mm)

494. Optic radiations arise from

a) Lateral Geniculate body

b) Medial Geniculate Body

c) Superior colliculus

d) Inferior colliculus

Correct Answer - A

Answer- A. Lateral Geniculate body

- The optic radiations (geniculocalcarine pathway) extend from the lateral geniculate body to the visual cortex. Inferior fibres of optic radiations, subserve upper visual fields and superior fibres subserve inferior visual fields.
- The visual pathway starting from retina consists of optic nerve, optic chiasma, optic tracts, lateral geniculate bodies, optic radiations, visual cortex.

495. Foster kennedy syndrome seen with

a) AION

b) Retinal detachment

c) Frontal lobe tumor

d) Macular edema

Correct Answer - C

Answer- C. Frontal lobe tumor

- Foster - kennedy syndrome :- The frontal lobe, pituitary and middle ear tumor such as meningiomata of the olfactor groove are sometimes associated with Ipsilateral pressure atrophy of the optic nerve and contralateral papilloedema.

496. What will be the consequence if the left optic nerve is cut

- a) Left eye complete blindness with loss of contralateral direct and ipsilateral consensual light reflex
- b) Left eye complete blindness with loss of ipsilateral direct and contralateral consensual light reflex
- c) Left eye complete blindness with no effect on light reflex
- d) Bitemporal hemianopia

Correct Answer - B

Answer- B. Left eye complete blindness with loss of ipsilateral direct and contralateral consensual light reflex

Lesion of optic nerve causes-

- Complete visual field loss of the ipsilateral eye (blindness);
- Abolition of ipsilateral direct and contralateral consensual light reflex;

497. A child has esotropia. What corrective surgery is to be performed

a) Medial rectus resection

b) Lateral rectus recession

c) Medial rectus recession

d) All of the above

Correct Answer - C

Answer- C. Medial rectus recession

Correction of refractive error is the initial treatment.

- Surgery should be considered only if spectacles do not fully correct the deviation and after every attempt has been made to treat amblyopia.
- Bilateral medial rectus recessions OR unilateral medial rectus recession combined with lateral rectus resection may be done

498. Duane Retraction Syndrome is most commonly characterised by

- a) Deficiency in action of 6th nerve characterized by difficult abduction
- b) Weakness of superior oblique
- c) Presence of corneal pigmentation
- d) Presence of acute increase in intraocular pressure

Correct Answer - A

Answer- A. Deficiency in action of 6th nerve characterized by difficult abduction

- Duane retraction syndrome represents the most frequent and most prominent congenital (CCDD). cranial dysinnervation disorder
- Duane retraction syndrome is a congenital strabismus that is usually caused by failure of normal development of the abducens nerve (the sixth cranial nerve). There is absence of the abducens nerve and fascicle with anomalous innervation of the lateral rectus muscle by the oculomotor nerve.

499. Which of the following antivirals cannot be used topically in the eye ?

a) Acyclovir

b) Ganciclovir

c) Idoxuridine

d) Famciclovir

Correct Answer - D

Answer- D. Famciclovir

- Topical antivirals used are - Acyclovir, Ganciclovir, triflurothymidine, Vidarabine, Idoxuridine.

500. Most common site of bony metastases in retinoblastoma

a) Skull bones

b) Hip bones

c) Ribs

d) Vertebrae

Correct Answer - A

Answer-A. Skull bones

- The most frequently identified sites of metastatic involvement in children with retinoblastoma include skull bones, distal bones, brain, spinal cord, lymph nodes and abdominal viscera.

501. Fusion of two eyelids by thin tags is called

a) Ankyloblepharon filiforme adnatum

b) Euryblepharon

c) Ablepharon

d) Epiblepharon

Correct Answer - A

Answer- A. Ankyloblepharon filiforme adnatum

- In ankyloblepharon filiforme adnatum the upper and lower eyelids are joined by thin tags; most cases are sporadic. Treatment involves transection with scissors.

502. Nasolacrimal duct runs in the nasolacrimal canal. It is made up of all the following bones except

a) Maxillary bone

b) Inferior nasal conchae

c) Lacrimal bone

d) Ethmoid

Correct Answer - D

Answer- D. Ethmoid

Nasolacrimal Canal

- The canal containing the nasolacrimal duct is called the nasolacrimal canal.
- It is formed by indentations in the inferior nasal conchae, maxilla and lacrimal bone.
- It drains to-into the nasal cavity through the anterior portion of the inferior meatus which is between the inferior concha and the floor of the nasal cavity.

503. Muscle not paralysed in retrobulbar block

a) Superior oblique

b) Lateral rectus

c) Superior rectus

d) Medial rectus

Correct Answer - A

Answer- A. Superior oblique

- A retrobulbar block is a regional anaesthetic nerve block in the retrobulbar space, the area located behind the globe of the eye. Injection of local anaesthetic into this space constitutes the retrobulbar block.
- Cranial nerve IV lies outside the muscle cone, but is blocked by diffusion of the local anaesthetic.
- Superior oblique is supplied by cranial nerve IV.

504. Anisocoria in homers syndrome is due to

a) Oculo sympathetic palsy

b) Oculo parasympathetic palsy

c) Oculomotor nerve palsy

d) Abducens nerve palsy

Correct Answer - A

Answer- A. Oculo sympathetic palsy

Horner's syndrome is oculo sympathetic palsy.

- Horner's syndrome consists of classical triad of ipsilateral:-
 1. Ptosis,
 2. Miosis,
 3. Anhydrosis (loss of sweating)
- Other features are :- Loss of cilio-spinal reflex, Enophthalmos, Heterochromia (ipsilateral iris is of light colour), the pupil is slow to dilate, slight elevation of inferior eyelid, normal pupillary reflex.

505. Gorlins formula is used to calculate

a) Area of stenotic aortic valve

b) Amount of daily calorie intake

c) Body mass index

d) Basal metabolic rate

Correct Answer - A

Answer-A. Area of stenotic aortic valve

- The stenotic valve orifice area is derived from the pressure gradient and cardiac output with the formula developed by Gorlin and Gorlin, which involves the fundamental hydraulic relationships, linking the area of an orifice to the flow and pressure drop across the orifice.

506. Which of the following is a feature of first degree AV block?

a) PR interval > 200 ms

b) Inversion of T wave

c) Progressive shortening of PR interval

d) Presence of U wave

Correct Answer - A

Answer- A. PR interval > 200 ms

- First-degree AV block (PR interval >200 ms) is a slowing of conduction through the AV junction.
- The site of delay is typically in the AV node but maybe in the atria, bundle of His, or His-Purkinje system.
- In second degree AV block there is an intermittent failure of electrical impulse conduction from atrium to ventricle.
- Second-degree AV block is subclassified as Mobitz type I (Wenckebach) or Mobitz type II.

507. Which of the following is an electrocardiographic feature of pulmonary hypertension?

a) T wave inversion

b) Presence of U wave

c) SI, Q3, T3 pattern

d) PR prolongation

Correct Answer - A

Answer- A. T wave inversion

The electrocardiogram (ECG) of a patient with PH may demonstrate.

- Signs of right ventricular hypertrophy or strain including : -
- Right axis deviation, an R wave/S wave ratio greater than one in lead VI (dominant R wave)

508. Which of the following is true about rheumatic fever

- a) Characteristic manifestation of carditis in previously unaffected individuals is mitral stenosis
- b) Chorea occurs in the absence of other manifestations after prolonged latent period
- c) Isolated aortic valve involvement is most common
- d) 90% of the patients with acute rheumatic fever proceed to rheumatic eart disease

Correct Answer - B

Answer- B. Chorea occurs in the absence of other manifestations after prolonged latent period

- Acute rheumatic fever (ARF) is a multisystem disease resulting from an autoimmune reaction to infection with group A streptococcus.
- The endocardium, pericardium, or myocardium may be affected. Valvular damage is the hallmark of rheumatic carditis
- The mitral valve is almost always affected, sometimes together with the aortic valve; isolated aortic valve involvement is rare.
- Early valvular damage leads to regurgitation.
- usually as a result of recurrent episodes, leaflet thickening, scarring, calcification, and valvular stenosis may develop.
- Therefore the characteristic manifestation of carditis in previously unaffected individuals is mitral regurgitation, sometimes accompanied by aortic regurgitation.

509. Orthodeoxia is a feature of

a) Hepatorenal syndrome

b) Hepatopulmonary syndrome

c) Hepatic encephalopathy

d) Hepatic failure

Correct Answer - B

Answer- B. Hepatopulmonary syndrome

Orthodeoxia refers to arterial desaturation noted when sitting up as opposed to lying down.

Conditions associated:

A) Cardiac (intracardiac shunt)

- Atrial septal defect (ASD)
- Patent foramen ovale (PFO)
- Pneumonectomy
- Usually associated with pulmonary hypertension or raised right atrial (RA) pressure (e.g. constrictive pericarditis, cardiac tamponade).

B) Pulmonary (intrapulmonary right-to-left shunts)

- Hepatopulmonary syndrome
- Pulmonary disease
- COPD
- Pulmonary embolism

C) Upper airway tumour

- Acute respiratory distress syndrome

D) Miscellaneous causes

- Autonomic neuropathy
- Acute respiratory distress syndrome (ARDS)

510. Levine sign is seen in

a) Stable angina pectoris

b) Acute bronchial asthma

c) Hemolytic anemia

d) Gastroesophageal reflux disease

Correct Answer - A

Answer- A. Stable angina pectoris

Stable Angina Pectoris:

- This episodic clinical syndrome is due to transient myocardial ischemia
- When the patient is asked to localize the sensation, he or she typically places a hand over the sternum, sometimes with a clenched fist, to indicate a squeezing, central, substernal discomfort (Levine's sign).

511. Which of the following is not an absolute contraindication for thrombolytic therapy in acute ST segment elevation myocardial infarction?

a) Significant closed head injury

b) Symptoms suggestive of aortic dissection

c) Presence of metastatic intracranial malignancy

d) Pregnancy

Correct Answer - D

Answer- D. Pregnancy

Pregnancy is a relative contraindication for thrombolytic therapy in acute ST segment elevation myocardial infarction and not an absolute contraindication.

History of any intracranial hemorrhagic

- History of ischemic stroke within the preceding three months, with the important exception of acute ischemic stroke seen within three hours, which may be treated with thrombolytic therapy.
- Presence of a cerebral vascular malformation or a primary or metastatic intracranial malignancy.

Symptoms or signs suggestive of an aortic dissection-

- A bleeding diathesis or active bleeding, with the exception of menses. Thrombolytic therapy may increase the risk of moderate bleeding, which is offset by the benefits of thrombolysis.

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

a) Stroke

b) Infective endocarditis

c) Mitral stenosis

d) Ventricular arrhythmia

Correct Answer - C

Answer- C. Mitral stenosis

Infective endocarditis

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

513. Not included in modified Jones criteria?

a) Polyarthralgia

b) Carditis

c) Chorea

d) Erythema marginatum

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

514. Intra arterial thrombolysis is indicated in

a) Suspected occlusion of larger artery

b) History of subarachnoid hemorrhage

c) History of dementia

d) Stroke of > 6 hours duration

Correct Answer - A

Answer- A. Suspected occlusion of larger artery

- Acute ischemic stroke < 6 hours in duration
- Stroke is significant, (i.e., disabling or life threatening)
- Suspected occlusion of a large artery (i.e., non-lacunar stroke syndrome)
- No hemorrhage on screening computed tomography scan

515. Which of the following murmurs increase with Valsalva maneuver?

a) MR

b) VSD

c) AS

d) HOCM

Correct Answer - D

Answer is D (HOCM)

Murmurs of HOCM are increased on Valsalva maneuver

Murmurs of VSD, MR and AS all decrease in intensity on Valsalva maneuver

Differentiation of systolic murmurs based on changes in their intensity from physiologic maneuvers

Maneuver	HOCM	AS	MR/VSD	MVP	TR	Flow
Valsalva's maneuver		•1,	.1,	1'	.1,	.1,
Stand	1'	-	-	is	-	.1,
Squat	.1,	-	-	.1,		1'
Handgrip/TAO	J.	-	1'	1'	-	
Inspiration		-	-	-	1'	- ori'
Post-PVC	T	T	-			T

AS= aortic stenosis; Flow = benign flow murmur; HOCM = hypertrophic obstructive cardiomyopathy; MR = mitral regurgitation; MVP = mitral valve prolapse; PVC = pressure ventricular contraction; TAO = transient arterial occlusion; TR = tricuspid regurgitation; VSD = ventricular septal defect; 1'= increased in murmur intensity; .1, = decreased in murmur intensity; - = no predictable change

predictable change

516. Features of superior vena cava syndrome are all except which of the following?

a) Facial swelling

b) Hoarseness

c) Aggravation of symptoms in sitting position

d) Syncope

Correct Answer - C

Answer- C. Aggravation of symptoms in sitting position

Superior vena cava syndrome (SVCS) is the clinical manifestation of superior vena cava (SVC) obstruction, with severe reduction in venous return from the head, neck and upper extremities.

Aggravating factors:

- Bending forward or lying down may aggravate the symptoms.

517. Which of the following is a characteristic feature of Moyamoya disease?

a) Involvement of proximal internal carotid artery

b) Absence of vascular inflammation

c) Patients can be given anticoagulants without any additional risk

d) Surgical bypass from internal carotid artery to middle meningeal artery can be a treatment.

Correct Answer - B

Answer- B. Absence of vascular inflammation

- Occlusive disease involving large intracranial arteries, especially the distal internal carotid artery and the stem of the middle cerebral and anterior cerebral artery.
- The lenticulostriate arteries develop a rich collateral circulation around the occlusive lesion, which gives the impression of a 'puff of smoke" (moyamoya in Japanese) on conventional x-ray angiography
- Occurs mainly in Asian children or young adults.
- Surgical bypass of extracranial carotid arteries to the dura or MCAs may prevent stroke and hemorrhage.

518. Modified wells criteria is used for initial assessment of patients with suspected

a) Pulmonary embolism

b) Pleural Effusion

c) Cardiac tamponade

d) Myocardial infarction

Correct Answer - A

Answer- A. Pulmonary embolism

519. Value of PaO₂/ FiO₂ characteristic of ARDS is

a) < 200 mmHg

b) 200 - 400 mmHg

c) 400 - 600 mmHg

d) 600 - 800 mmHg

Correct Answer - A

Answer- A. < 200 mmHg

- Acute respiratory distress syndrome (ARDS) is a clinical syndrome of severe dyspnea of rapid onset, hypoxemia, and diffuse pulmonary infiltrates leading to respiratory failure.
- The arterial PaO₂ (in mmHg)/FiO₂ (inspiratory O₂ fraction) <200 mmHg is characteristic of ARDS, while a PaO₂ /FiO₂ between 200 and 300 identifies patients with ALI who are likely to benefit from aggressive therapy.

520. Which of the following is not an evidenced based recommended therapy for the management of acute respiratory distress syndrome

a) Low tidal volume mechanical ventilation

b) Inhaled nitric oxide

c) Minimize left atrial filling pressures

d) Prone positioning

Correct Answer - B

Answer- B. Inhaled nitric oxide

- Mechanical ventilation
- Low tidal volume
- Minimize left atrial filling pressures
- High-PEEP or "open lung"
- Prone position
- Glucocorticoids
- High frequency ventilation

521. Massive hemoptysis seen in

a) Mitral stenosis

b) Aortic stenosis

c) Pulmonary stenosis

d) Aortic regurgitation

Correct Answer - A

Answer- A. Mitral stenosis

- Large volume hemoptysis, referred to as massive hemoptysis, is variably defined as hemoptysis of greater than 200-600 cc in 24 h. Massive hemoptysis should be considered a medical emergency.
- Hemoptysis does not occur from heart failure itself. Most commonly it is due to mitral valve diseases like mitral stenosis or mitral regurgitation.

522. Investigation of choice to establish the diagnosis in case of nephrotic syndrome in adult is

a) Renal biopsy

b) DMSA

c) CT Scan

d) MRI

Correct Answer - A

Answer- A. Renal biopsy

- In adults since steroid responsive disease is less likely (<30%), and a wide differential diagnosis of nephrotic syndrome exists, renal biopsy is recommended to establish the diagnosis.

523. What is the cause of hyperkalemia in chronic kidney failure

a) Release from cells

b) Hyperinsulinemia

c) Decreased excretion

d) Hyperaldosteronism

Correct Answer - C

Answer- C. Decreased excretion

524. Routine use of recombinant erythropoietin in patients of chronic kidney disease obviates the chances of

a) Regular blood transfusions

b) Iron supplementation

c) Dialysis

d) Hyperkalemia

Correct Answer - A

Answer- A. Regular blood transfusions

- Recombinant human EPO and modified EPO products, such as darbepoetin- alpha, has been one of the most significant advances in the care of renal patients since the introduction of dialysis and renal transplantation.
- The routine use of these products has obviated the need for regular blood transfusions in severely anemic CKD patients.
- Frequent blood transfusions in dialysis patients also leads to the development of allo-antibodies that could sensitize the patient to donor kidney antigens and make renal transplantation difficult.
- Adequate bone marrow iron stores should be available before treatment with EPO is initiated.
- For patients on hemodialysis, IV iron can be administered during dialysis.

525. MDRD (Modification of Diet in Renal Disease) formula for estimation of GFR does not include which of following?

a) Age

b) Sex

c) Race

d) Body weight

Correct Answer - D

Answer- D. Body weight

MDRD Formula includes:

1. Age
2. Sex (Multiply by 0.742 for women)
3. Race (Multiply by 1.21 for African Americans)

526. Arterial blood gas analysis of a patient reveals - pH 7.2, HCO₃ 36 mmol/L pCO₂ 70 mmHg. The abnormality is

a) Respiratory acidosis with metabolic alkalosis

b) Respiratory acidosis

c) Respiratory alkalosis with metabolic acidosis

d) Respiratory acidosis with metabolic acidosis

Correct Answer - A

Answer- A. Respiratory acidosis with metabolic alkalosis

In this patient

- pH → Decreased
- HCO₃ → Increased
- PCO₂ → Increased
- PCO₂ is increased which indicates respiratory acidosis
- HCO₃⁻ is increased which indicates metabolic alkalosis
- Thus this is a case of mixed disorder, where respiratory acidosis and metabolic alkalosis exist together.

527. pH 7.49, pCO₂ 38 mmHg, pO₂ 92 mmHg, HCO₃ 35, SaO₂ 97%. Which of the following should not be used in the management of this patient?

a) Hyperventilation

b) Correction of serum potassium levels

c) Correction of extracellular fluid volume contraction

d) Use of dilute hydrochloric acid

Correct Answer - A

Answer- A. Hyperventilation

Suggestive of metabolic alkalosis.

- H⁺ loss by the stomach or kidneys can be mitigated by the use of proton pump inhibitors.
- The second aspect of treatment is to remove increase in HCO₃⁻ reabsorption, such as ECFV contraction or K⁺ deficiency.
- Isotonic saline is usually sufficient to reverse the alkalosis if ECFV contraction is present.
- Dilute hydrochloric acid (0.1 N HCl) is also effective but can cause hemolysis, and must be delivered centrally and slowly.
- Hemodialysis against a dialysate low in (HCO₃⁻) and high in (Cl⁻) can be effective when renal function is impaired.

528. Peritoneal dialysis uses which of the following process/ es?

a) Osmosis

b) Diffusion

c) Ultrafiltration

d) All the above

Correct Answer - D

Answer- D. All the above

- The repetitive installation and drainage of dialysis solution into and from peritoneal cavity - uses process of osmosis, ultrafiltration and diffusion to remove wastes, toxins and fluid from the blood.

529. The most common cause of euvolemic hyponatremia is which of the following?

a) Hypothyroidism

b) Hypoadrenalism

c) Hyperthyroidism

d) SIADH

Correct Answer - D

The syndrome of inappropriate antidiuresis is the most common cause of euvolemic hyponatremia.

Reference:

- Harrisons Principles of Internal Medicine, 18th Edition, Page 345

530. Hypo-osmotic dehydration is seen in

a) Adrenocortical insufficiency

b) Decreased water intake

c) Chronic renal failure

d) SIADH

Correct Answer - A

Answer- A. Adrenocortical insufficiency

- Loss of salt in excess of water causes hypo-osmotic volume contraction.
- This usually results from adrenocortical insufficiency associated with renal loss of NaCl.
- Aspiration of gastric secretions can cause hypertonic fluid loss from body.

531. Hyperkalemia is a feature of

a) Conns syndrome

b) Gitelman's syndrome

c) Pseudohypoaldosteronism type 2

d) Liddle syndrome

Correct Answer - C

Answer- C. Pseudohypoaldosteronism type 2

Pseudohypoaldosteronism type 2 is associated with hyperkalemia.

- Conns syndrome, Gitelman's syndrome and Liddle syndrome are associated with hypokalemia.

532. Adverse effects of excess potassium intake can be seen in which of the following individuals?

a) Patients with adrenal insufficiency

b) Patients with diabetes mellitus

c) Patients taking angiotensin receptor blockers

d) All the above

Correct Answer - D

Answer- D. All the above

- supplemental potassium can lead to acute toxicity in healthy individuals.
- Individuals whose urinary potassium is impaired, a potassium intake less than 4.7 g/d appropriate because of adverse cardiac effects (arrhythmias) from hyperkalemia.
- Drugs that commonly impair potassium excretion are, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, and potassium sparing diuretics.
- Conditions associated impaired potassium excretion, are diabetes, chronic renal insufficiency, end stage renal disease, severe heart failure, and adrenal insufficiency.
- Elderly individuals are at increased risk of hyperkalemia.

533. 28 years old male presents with fever, anorexia, nausea, vomiting, headache, photophobia and arthralgias. Liver is enlarged and tender and associated with right upper quadrant discomfort. Which of the following is the most probable diagnosis?

a) Acute viral hepatitis

b) Sickle cell disease

c) Thalassemia

d) Acute lymphocytic lymphoma

Correct Answer - A

Answer- A. Acute viral hepatitis

- Symptoms are anorexia, nausea and vomiting, fatigue, malaise, arthralgias, myalgias, headache, photophobia, pharyngitis, cough.
- Dark urine and clay-colored stools may be noticed by the patient from 1 -5 days before the onset of clinical jaundice.
- The liver becomes enlarged and tender and may be associated with right upper quadrant pain and discomfort.
- Splenomegaly and cervical adenopathy are present.

534. Hepatic secretory function is evaluated using

a) Alkaline phosphatase

b) 5' nucleotidase

c) Gamma glutamyl transpeptidase

d) Prothrombin time (PT)

Correct Answer - D

Answer- D. Prothrombin time (PT)

- The most widely used tests are those measuring the blood concentration of aspartate aminotransferase (AST) and alanine aminotransferase (ALT).
- **Congulation proteins:** The easiest way to estimate the concentration of the coagulation factors is by measuring the prothrombin time (PT), which is normally 10 to 13 seconds. Prolonged PT is a sensitive index of liver function loss.

535. Which antibodies are associated with autoimmune hepatitis type IIa

a) ANA antibody

b) p ANCA

c) Anti histone antibody

d) Anti LKM antibody

Correct Answer - D

Answer- D. Anti LKM antibody

Type II autoimmune hepatitis

Associated with anti LKM

IIa-

- Young women
- High titre anti LKM
- Responds to glucocorticoid.

536. A patient undergoes a lipid profile screening. On withdrawing the blood, it appears white in colour, Which of the following is the most probable elevated lipoprotein?

a) Chylomicrons

b) HDL

c) LPL

d) Cholesterol

Correct Answer - A

Answer- A. Chylomicrons

- White (Lactescent) appearance is caused by chylomicrons.

537. Typical symptom of gastroesophageal reflux disease is

a) Regurgitation

b) Dysphasia

c) Chest pain

d) Cough

Correct Answer - A

Answer- A. Regurgitation

- Heartburn and regurgitation are the typical symptoms of GERD.
- Dysphagia and chest pain.
- Extraesophageal syndrome, with an established association to GERD include chronic cough, laryngitis, asthma, and dental erosions.

538. Bristol chart is used fore

a) Stool consistency

b) Nocturnal enuresis

c) Mental retardation

d) Cognitive development

Correct Answer - A

Answer- A. Stool consistency

The Bristol stool scale(Bristol stool chart (BsC)) is a diagnostic medical tool designed to classifr the form of human feces into seven categories.

The seven types of stool are

- Type 1 Separate hard lumps, like nuts (hard to pass); also known as goat faeces
- Type 2: Sausage-shaped but lumpy
- Type 3: Like a sausage but with cracks on its surface
- Type 4: Like a sausage or snake, smooth and soft
- Type 5: Soft blobs with clear cut edges (passed easily)
- Type 6: Fluff pieces with ragged edges, a mushy stool
- Type 7: Watery, no solid pieces, entirely liquid

539. Pitying testing for lower motor neuron lesion involving nucleus ambiguous; uvula

a) Is deviated to the affected side

b) Is deviated to the normal side

c) Remains in midline

d) Is not used in testing

Correct Answer - B

Answer- B. Is deviated to the normal side

- It is the column of cells running almost the entire length of medulla.
- Motor neurons in the nucleus ambiguous innervate the constrictor muscles of the pharynx, muscles of the velopharynx (such as constrictor veli palatine), intrinsic muscle of the larynx, and single muscle of the tongue.
- In case of unilateral lower motor neuron lesion, when the patient phonates the soft palate will raise asymmetrically, with higher elevation on the healthy side and the uvula pulled of the midline in the same direction i.e. it is deviated to the normal unaffected side.

540. Pseudobulbar palsy is seen with

a) Unilateral corticobulbar lesions

b) Bilateral corticobulbar lesions

c) Cranial nerve IX involvement

d) Cranial nerve N involvement

Correct Answer - B

Answer- B. Bilateral corticobulbar lesions

- This pattern of weakness results from disorders that affect the upper motor neurons or their axons in the cerebral cortex, subcortical white matter, internal capsule, brainstem, or spinal cord.
- With corticobulbar involvement, weakness usually is observed only in the lower face and tongue; extraocular, upper facial, pharyngeal, and jaw muscles almost always are spared.
- With bilateral corticobulbar lesions, pseudobulbar palsy often develops: dysarthria, dysphagia, dysphonia, and emotional lability accompany bilateral facial weakness and a brisk jaw jerk.

541. Conduction aphasia is classically seen due to lesion in -

a) Arcuate fasciculus

b) Cingulate gyms

c) Bruges area

d) Werniekes area

Correct Answer - A

Answer- A. Arcuate fasciculus

542. Intention tremor, drunken gait and scanning speech together point towards involvement of

a) Cerebellum

b) Cortex

c) Medulla

d) Micturition

Correct Answer - A

Answer- A. Cerebellum

Clinical features of Cerebellar lesions:

- Incoordination of rapid alternating movements - dysdiadochokinesia
- Inaccuracy of purposeful movements - dysmetria
- Irregular variations in the volume and rhythm of speech - scanning speech
- Broad based reeling gait - like a drunken sailor
- Quasirhythmical rocking of the head and trunk - titubation
- Hypotonia
- Nystagmus

543. Most common cause of death in amyotrophic lateral sclerosis is

a) Cardiac failure

b) Respiratory failure

c) Renal failure

d) Liver failure

Correct Answer - B

Answer-B. Respiratory failure

- Amyotrophic lateral sclerosis (ALS) is the most common form of progressive motor neuron disease. It is a prime example of a neurodegenerative disease and is arguably the most devastating of the neurodegenerative disorders.
- Respiratory failure is the leading cause of death in amyotrophic lateral sclerosis, and terminal dysnoea is a major fear in patients with amyotrophic lateral sclerosis.

544. Working memory can be affected due to lesion in -

a) Hypothalamus

b) Thalamus

c) Mammillary body

d) Dorsolateral frontal lobe

Correct Answer - A

Answer- A. Hypothalamus

- Working memory stores items only as long as the information is in consciousness and is either being rehearsed (subvocally) or manipulated in some other fashion (i.e. rotated or integrated with existing information in semantic memory).
- Working memory is highly vulnerable to distraction and sometimes is even called working attention to emphasize the conscious and effortful processes that it entails.
- Lesions that disrupt the structure or function of the dorsolateral frontal or posterior parietal regions decimate working memory.

545.

Anomia is seen in lesions of which part of temporal lobe

a) Posterior part

b) Uncus

c) Inferior temporal lobe

d) Meyers loop

Correct Answer - A

Answer- A. Posterior part

- Uncus part of pyriform lobe
- Posterior part of temporal lobe

546. Which of the following is true about typical absence seizures?

a) Long term lapse in consciousness

b) Profound post ictal confusion

c) Hyperventilation provokes absence seizures

d) Absence seizures originate after 40 yrs of age

Correct Answer - C

Answer- C. Hyperventilation provokes absence seizures

- Typical absence seizures are characterized by sudden, brief lapses of consciousness without loss of postural control.
- The seizure typically lasts for only seconds, consciousness returns as suddenly as it was lost, and there is no post ictal confusion.
- Typical absence seizures are associated with a group of genetically determined epilepsies with onset usually in childhood (ages 4-8 years) or early adolescence.
- Hyperventilation tends to provoke these electrographic discharges and even the seizures themselves and is routinely used when recording the EEG.

547. Cerebellar shape in fetus with spina bifida before 24 weeks of gestation mimics which of the following?

a) Banana

b) Orange

c) Swiss cheese

d) Pea

Correct Answer - A

Answer- A. Banana

- In majority of cases of spina bifida, the cerebellum is either not detectable sonographically or has a banana shaped appearance.

548. Most common cause of lobar hemorrhage in the elderly

a) Coagulopathy

b) Aneurysm

c) Amyloid angiopathy

d) Trauma

Correct Answer - C

Answer- C. Amyloid angiopathy

- Lobar intracerebral hemorrhage is bleeding in the largest part of the brain called the cerebrum.
- Intracerebral hemorrhage are attributed to hypertensive vasculopathy in small penetrating brain arteries and subcortical vessels in patients with amyloid angiopathy.
- Amyloid angiopathy a chronic deposition of congophilic material in brain vessels, is the most common cause of lobar hemorrhage in older patients.

549. Intravenous rtPA is indicated in ischemic stroke within how many hours of onset of disease process

a) 1 hour

b) 3 hours

c) 6 hours

d) 12 hours

Correct Answer - B

Answer- B. 3 hours

- The National Institute of Neurological Disorders and Stroke (NINDS) recombinant tPA (rtPA) Stroke Study showed a clear benefit for IV rtPA in selected patients with acute stroke.
- The NINDS study used IV rtPA (0.9 mg/kg to a 90-mg max; 10% as a bolus, then the remainder over 60 minutes) versus placebo in patients with ischemic stroke within 3 hours of onset.

550. Drug of Choice for absence seizure in children < 3 years of age is

a) Ethosuximide

b) Carbamazepine

c) Lamtrigine

d) Phenyntain

Correct Answer - A

Answer- A. Ethosuximide

- Ethosuximide is the DOC for absence seizures in children below 3 years of age as Na valproate may cause fulminant hepatitis in children below 3 years of age. Broadly, Na valproate is the DOC for absence seizures.

551. Which of the following is true about Wernicke's encephalopathy

- a) Extraparamidal symptoms
- b) Auditory hallucinations
- c) Vagus nerve palsy
- d) Presence of horizontal nystagmus

Correct Answer - D

Answer- D. Presence of horizontal nystagmus

Wernicke's disease is a common and preventable disorder due to deficiency of thiamine.

- It is commonly seen in alcoholic patients with chronic thiamine deficiency.
- Wernicke's encephalopathy is characterized by clinical triad of
 - Global confusion
 - Ophthalmoplegia
 - **Ataxia**
- It includes horizontal nystagmus on lateral gaze lateral rectus palsy.
- **Gait Ataxia**
- It results from combination of polyneuropathy, cerebellar involvement and vestibular paresis.

552. Parinaud syndrome is caused by damage to

a) Anterior commissure

b) Posterior commissure

c) Medial commissure

d) Lateral commissure

Correct Answer - B

Answer- B. Posterior commissure

- Also known as dorsal midbrain syndrome, this is a distinct supranuclear vertical gaze disorder caused by damage to the posterior commissure.
- Pineal region tumors, cysticercosis, and stroke also cause Parinaud's syndrome.

553. Which of the following is true about Hyperglycemic hyperosmolar state -

a) it is more common in young patients with type 1 diabetes melitus

b) Mental status is not altered in any case

c) There is associated hypertension and tachycardia

d) Kussmaul respirations are characteristic

Correct Answer - D

Answer- D. Kussmaul respirations are characteristic Hyperglycemic hyperosmolar nonketotic coma

- Notably absent are symptoms of nausea, vomiting, and abdominal pain and the Kussmaul respirations characteristic of DKA.
- This is a life threatening complication of diabetes mellitus characterized by marked hyperglycemia, dehydration, and hyperosmolarity with or without mental obtundation in the absence of significant ketoacidosis.
- The prototypical patient with HHS is an elderly individual with type 2 DM.
- Sepsis, pneumonia, and other serious infections are frequent precipitants.

554. Hypercalcemia related to malignancy is seen in which of the following cancers?

a) Multiple myeloma

b) Lung carcinoma

c) Carcinoma breast

d) All the above

Correct Answer - D

Answer- D. All the above

Malignancy related-

- Solid tumor with metastasis/ paraneoplastic syndrome
- Carcinoma breast/ Lung/ Kidney etc
- Hematological: Multiple myeloma/
- Lymphoma/Leukemia
- Aluminum intoxication
- Milk Alkali syndrome

**555. All are seen in MEN IIA syndrome
except**

a) Medullary carcinoma of thyroid is seen in 100% of the patients

b) 40 - 30% patients have pheochromocytoms

c) Caused by loss of function mutation in IIRT protooncogene

d) Primary hyperparathyroidism is the most variable feature of
MEN II A syndrome

Correct Answer - C

**Answer- C. Caused by loss of function mutation in IIRT
protooncogene**

- MEN-2A or Sipple syndrome, is characterized by pheochromocytoma, medullary carcinoma of the thyroid, and parathyroid hyperplasia.
- Parathyroid hyperplasia and evidence of hypercalcemia or renal stones.
- MEN-2A is clinically and genetically distinct from MEN-I and is caused by germline gain-of-function mutations in the
- RET proto-oncogene on chromosome 10q11.2.
- 40% to 50% have pheochromocytomas.
- Primary hyperparathyroidism is the most variable feature of MEN 2A syndrome.

556. which of the following can be used to differentiate between diabetes mellitus type 1 and 2?

a) Association with All 3/4

b) Presence or absence of insulinitis

c) Insulin levels

d) All the above

Correct Answer - D

Answer- D. All the above

Age- <20 years

- Autoimmune destruction of Beta cells mediated by T cells and humoral mediators. Anti islet cell antibodies.
- Islet cells- Early Insulinitis, marked atrophy and fibrosis, Beta cell depletion.
- Marked decrease blood insulin.

557. A female presents with swelling in neck, palpitations and exophthalmos, Which of the following is the most likely diagnosis?

a) Oranulomatous thyroiditis

b) Hashimoto thyroiditis

c) Graves disease

d) Mutinodular goitre

Correct Answer - C

Answer- C. Graves disease

- The clinical findings in Graves disease include some changes associated with thyrotoxicosis.
- The ophthalmopathy of Graves disease results in abnormal protrusion of the eyeball (exophthalmos).
- The infiltrative dermopathy, or pretibial myxedema, is most common in the skin overlying the shins.
- Graves disease, such as diffuse hyperplasia of the thyroid.

558. HbA1c control for how much time

a) 2 -3 weeks

b) 3 - 6 weeks

c) 6 - 8 weeks

d) 14 - 18 weeks

Correct Answer - C

Answer- C. 6 - 8 weeks

- The half-life of an erythrocyte is typically 60 days, the level of glycated hemoglobin (HbA1c) reflects the mean blood glucose concentration over the preceding 6-8 weeks.

559. Somogyi effect is -

a) Morning hyperglycemia due to insulin resistance

b) Morning hyperglycemia due to large dose of exogenous insulin

c) Morning hypoglycemia due to large dose of exogenous insulin

d) Evening hypoglycemia due to insulin resistance

Correct Answer - B

Answer- B. Morning hyperglycemia due to large dose of exogenous insulin

- Rebound hyperglycemia, results from excess exogenous insulin, which causes hypoglycemia overnight and stimulates the release of counter regulatory hormones that in turn increase blood glucose levels.

560. Normocytic normochromic anemia is seen in which of the following?

a) Sideroblastic anemia

b) Pernicious anemia

c) Aplastic anemia

d) Sickle cell disease

Correct Answer - C

Answer- C. Aplastic anemia

Marrow damage

- Infiltration/fibrosis
- Aplasia
- Iron deficiency**
- Decrease Stimulation
- Inflammation
- Metabolic defect
- Renal disease

561. 24 years old female patient presents with acute blood loss secondary to bilateral fracture femur. Reticulocytosis is evident on peripheral smear examination. Patient's anemia can be categorized into which of the following types?

a) Normocytic normochromic

b) Normocytic Hypochromic

c) Microcytic hypochromic

d) Microcytic normochromic

Correct Answer - A

Answer- A. Normocytic normochromic

- Anemia Due to Acute Blood loss (Acute posthemorrhagic anemia):
- It is a variety of normocytic normochromic anemia.
- Posthemorrhagic anemia can be external (as after trauma, or obstetric hemorrhage) or internal (e.g., from bleeding in the gastrointestinal tract, rupture of the spleen, rupture of an ectopic pregnancy, subarachnoid hemorrhage).
- Such type of anemia is accompanied by reticulocytosis.

562. Venous thrombosis In patients with paroxysmal nocturnal hemoglobinuria is observed in

a) Cerebral veins

b) Leg veins

c) Intrabdominal veins

d) Axillary vein

Correct Answer - C

Answer- C. Intrabdominal veins

- Venous thrombosis is an inconstant but severe clinical manifestation of P.N.H.
- Thrombosis occurs due to absence of CD59 which is a membrane attached protein
- Thrombosis usually occurs in abdominal veins. Intra-abdominal veins are the most common site of thrombosis in P.N.H.

563. Anemia seen in patients with orotic aciduria is corrected with

a) Folic acid supplementation

b) Vitamin B12 supplementation

c) Replacement of uridine

d) Iron supplementation

Correct Answer - C

Answer- C. Replacement of uridine

- Hereditary orotic aciduria is caused by mutations in a bifunctional enzyme, uridine-5 -monophosphate (UMP) synthase, which converts orotic acid to UMP in the de novo synthesis pathway.
- Replacement of uridine (100-200 mg/kg per day) corrects the anemia, reduces orotic acid excretion, and improves the other sequelae of the disorder.

564. Neoplastic cells in Franklin disease express

a) CD5

b) CD10

c) CD55

d) CD79a

Correct Answer - D

Answer- D. CD79a

- In classic Franklin disease, neoplastic lymphocytes, plasmacytoid lymphocytes and plasma cells can be found in lymph nodes, Waldeyer ring, gastrointestinal tract and other extranodal sites, spleen, liver, bone marrow.
- Systemic symptoms- fever, weight loss, weakness, anorexia, recurrent bacterial infections.
- Neoplastic cells in Franklin disease, are believed to represent post germinal center B cells. The neoplastic cells contain gamma heavy chains in the cytoplasm of cells (without light chains) and express CD 79a.
- Neoplastic lymphocytes in this disorder express CD20, neoplastic plasma cells in this disorder express CD 138.

565. Which of the following inherited neutropenias show a self limited course?

a) Shwachman-Diamond syndrome

b) Dyskeratosis congenita

c) Chediak higashi syndrome

d) Autoimmune neutropenia of infancy

Correct Answer - D

Answer- D. Autoimmune neutropenia of infancy

- It is recognized as a fairly specific syndrome of early childhood.
- Low neutrophil numbers are often discovered during the course of routine investigation for benign febrile illness.
- The illness abates but the neutropenia persists, sometimes for months and occasionally for years.
- The prognosis is good and neutropenia is self-limited albeit protracted, and patients seldom develop serious bacterial infections.

566. Cigarette smoking increases the risk of all the following diseases except

a) Pancreatic carcinoma

b) Cerebrovascular accident

c) Sudden infant death syndrome

d) Primary pulmonary hypertension

Correct Answer - D

Answer- D. Primary pulmonary hypertension

Coronary heart disease

- Cerebrovascular lesions
- Aortic aneurysm
- Chronic airway obstruction
- Sudden infant death syndrome
- Infant respiratory distress syndrome
- Cancer of Pancreas, Lung, Kidney.

567. Category of patients with juvenile idiopathic arthritis, with HLA B27 positive in most of the cases, who present with enthesitis, lower limb arthritis involving knees and ankle and presence of inflammatory low back pain, is most likely to be

a) Enthesitis related arthritis

b) Rheumatoid arthritis

c) Reactive arthritis

d) Cryoglobulinemia

Correct Answer - A

Answer- A. Enthesitis related arthritis

- Arthritis most commonly affects the lower extremities, knees and ankles, but the hip can also be affected.
- Enthesitis occurs frequently and is commonly seen as plantar fasciitis, achilles tendinitis and patellar tendon enthesitis.
- Inflammatory back pain is often seen, defined as lumbosacral spinal pain at rest, with morning stiffness that improves on movement.
- There is a strong association with HLA B27, with most of the patients of enthesitis associated arthritis positive for HLA B27.
- Iritis, usually acute, severe hip disease.

568. A patient presents with symptoms of chronic diarrhea and cough and sputum production. On investigations he is diagnosed to be suffering from both HIV infection and pulmonary tuberculosis. What medical management is to be started first in this patient?

a) Antitubercular therapy

b) Antiretroviral therapy

c) Antitubercular therapy or antiretroviral therapy

d) Sequence of beginning treatment is not important

Correct Answer - A

Answer- A. Antitubercular therapy

- In the question give, it is essential to begin antituberculous therapy before beginning antiretroviral therapy
- Infections most commonly associated with IRIS include *Mycobacterium tuberculosis* and cryptococcal meningitis.
- Immune reconstitution inflammatory syndrome (IRIS) (also known as immune recovery syndrome) can develop if antiretroviral therapy is begun before treating the opportunistic infection.

569. Which immunoglobulin combination is predominantly in pathogenesis of cryoglobulinemic vasculitis

a) IgA + IgG

b) IgM + IgG

c) IgA + IgE

d) IgE + IgM

Correct Answer - B

Answer- B. IgM + IgG

- cryoglobulinemic vasculitis occurs when an aberrant immune response to hepatitis C infection leads to the formation of immune complexes consisting of hepatitis C antigens, polyclonal hepatitis C-specific IgG, and monoclonal IgM rheumatoid factor.

570. Bannwarth's syndrome develops secondary to infection with

a) *B. burgdorferi*

b) *T. pallidum*

c) *B. cereus*

d) *afragilis*

Correct Answer - B

Answer- B. T. pallidum

- It is also called neuroborreliosis.
- It is secondary to infection with *B. burgdorferi*.
- Meningeal irritation may develop early in Lyme disease when erythema migrans is present.
- untreated patients develop frank neurologic abnormalities, including meningitis,
- subtle encephalitic signs, cranial neuritis (including bilateral facial palsy), motor or sensory radiculoneuropathy, peripheral neuropathy, mononeuritis multiplex, cerebellar ataxia, or myelitis.
- In Europe and Asia, the first neurologic sign is characteristically radicular pain, which is followed by the development of CSF pleocytosis (called meningopolyneuritis, or Bannwarth's syndrome); meningeal or encephalitic signs are frequently absent.

571. Hormonal abnormalities in men and post menopausal women suffering from rheumatoid arthritis include the following except

a) Decreased testosterone

b) Decreased luteinizing hormone

c) Decreased dehydroepiandrosterone

d) Decreased thyroid autoantibodies

Correct Answer - D

Answer- D. Decreased thyroid autoantibodies

- Men and postmenopausal women with RA have lower mean serum testosterone, luteinizing hormone (LH) and dehydroepiandrosterone (DHEA) levels than control populations.

572. Which of the following toxin is responsible for manifestations of puffer fish poisoning?

a) BOAA

b) Tetrodotoxin

c) Strychnine

d) Ciguatoxin

Correct Answer - B

Answer- B. Tetrodotoxin

- The toxin involved is tetrodotoxin.
- Symptoms of pufferfish poisoning include initial tingling, numbness of lips, tongue and fingers, leading to the paralysis of the extremities, ataxia, difficulty in speaking, and finally death by asphyxiation due to respiratory paralysis.

573. Increased urinary excretion of calcium is seen in which of the following condition/s?

a) Sarcoidosis

b) Glucocorticoid excess

c) Wilson's disease

d) All the above

Correct Answer - D

Answer- D. All the above

Parathyroid hyperfunction

- Sarcoidosis
- Primary cancers of the breast and bladder
- Metastatic malignancies
- Wilson's disease
- Renal tubular acidosis
- Glucocorticoid excess
- Respiratory disease

574. Lassa fever virus belongs to family

a) Arenaviridae

b) Bunyaviridae

c) Flaviviridae

d) Reoviridae

Correct Answer - A

Answer- A. Arenaviridae

- There are two main phylogenetic branches of Arenaviridae: the Old World viruses, such as lassa fever and lymphocytic choriomeningitis (LCM) viruses.

575. Drug of choice for intractable hiccups -

a) Promethazine

b) Chlorpromazine

c) Scopolamine

d) Clozapine

Correct Answer - B

Answer- B. Chlorpromazine

- Hiccups are repeated spasmodic involuntary contractions of the diaphragm that occur when you inhale.

Persistent or Intractable Hiccups:-

- i) Chlorpromazine → Drug of choice
- ii) Baclofen
- iii) Diphenylhydantoin
- iv) Valproic acid
- v) Amitriptyline
- vi) Metoclopramide

576. Recommended drug for patients with intrahepatic Wilson's disease i.e. patients with hepatitis, is

a) Zinc

b) Triamterene

c) Trientine

d) Penicillamine

Correct Answer - A

Answer- A. Zinc

- Hepatitis or cirrhosis without decompensation Zinc (first choice) & Trientine (2nd choice).

577. Which of the following is/ are the cause/s of unilateral elevation of hemidiaphragm?

a) Pulmonary hypoplasia

b) Subphrenic infection

c) Phrenic nerve palsy

d) All the above

Correct Answer - D

Answer- D. All the above

Posture - Lateral decubitus position (dependent side)

- Gaseous distension of stomach or colon
- Dorsal scoliosis
- Pulmonary hypoplasia
- Pulmonary collapse
- Phrenic nerve palsy
- Eventration
- Pneumonia or pleurisy
- Pulmonary thromboembolism
- Rib fracture and other painful conditions
- Subphrenic infection
- Subphrenic mass

578. Most common cause of death in Rheumatoid Arthritis?

a) Ischemic heart disease

b) ARDS

c) Pulmonary fibrosis

d) Hepatic failure

Correct Answer - A

Answer- A. Ischemic heart disease

- The overall mortality rate in RA is two times greater than the general population, with ischemic heart disease being the most common cause of death followed by infection.

579. Incidence of Pneumocystis jiroveci pneumonia has declined in recent times due to which of the following?

a) Better living conditions

b) Decrease in the incidence of HIV infection

c) Use of combination ART

d) Stronger immunity of the cohort

Correct Answer - C

Answer- C. Use of combination ART

- Pneumocystis pneumonia (PCP), once the hallmark of AIDS, has dramatically declined in incidence following the development of effective prophylactic regimens and the widespread use of cART.

580. A 34 years old male patient presents with symptoms of headache nausea and vomiting and intermittent focal seizures. On investigation patient is diagnosed to be suffering from neurocysticercosis. Antiparasitic drug used in the management of these patients are given for a duration of

a) 15 - 30 days

b) 60 - 90 days

c) 3 - 4 months

d) 6 months

Correct Answer - A

Answer- A. 15 - 30 days

- For the treatment of patients with brain parenchl.mal cysticerci. most authorities favor antiparasitic drugs, including albendazole (15 mdkgper dayforS-28 days) orpraziquantel (50-100 mdkgdailyinthree divideddoses for 15-30 days).

581. Which of the following is the most serious late side effect of treatment of Hodgkins disease?

a) Cardiac injury

b) Infertility

c) Hair loss

d) Osteoporosis

Correct Answer - A

Answer- A. Cardiac injury

- The most serious late side effects include second malignancies and cardiac injury. Patients are at risk for the development of acute leukemia in the first 10 years after treatment with combination chemotherapy regimens that contain alkylating agents plus radiation therapy.

582. Which of the following is not true about the risk factors of systemic sclerosis?

a) Human CMV infection

b) Human parvovirus B 19 infection

c) Miners exposed to lead

d) Drugs like bleomycin

Correct Answer - C

Answer- C. Miners exposed to lead

- Patients with Systemic sclerosis (SSc) have increased serum antibodies to human cytomegalovirus (hCMV), and antitopoisomerase-I (Scl-70) autoantibodies recognize antigenic epitopes present on the hCMV-derived proteins.
- Drugs implicated in SSc-like illnesses include bleomycin, pentazocine and cocaine, and appetite suppressants linked with pulmonary hypertension.

583. Not classified as untidy wound is

a) Burn wound

b) Incised wound

c) Crush wound

d) Lacerated wound

Correct Answer - B

Answer- B. Incised wound

- Usually involves crushing and tearing and contain devitalized tissues.
- Needs conversion to tidy wound before closure is considered.
- These wounds result from crushing, avulsion or burns. Fractures are common and may be multifragmentary.
- Treatment - Once the untidy wound is converted to a tidy one by wound excision, it can be safely closed or allowed to heal by second intention.

584. Which of the following is not a hard sign of arterial injury?

a) Expanding or pulsatile hematoma

b) Arterial bleeding

c) Shock

d) Bruit

Correct Answer - C

Answer- C. Shock

Hard signs

Distal circulatory deficit

- Ischaemia
- Absent or diminished pulses
- Bruit
- Expanding or pulsatile hematoma
- Arterial bleeding

585. Most reliable sign of injury to intrathoracic aorta is

a) Presence of apical cap of pleural fluid

b) Depression of left main stem bronchus

c) Obliteration of aortic knob contour

d) Funny looking mediastenum

Correct Answer - C

Answer- C. Obliteration of aortic knob contour

- The most reliable of these signs for the blunt aortic injury is loss of the aortic knob contour.

586. Most common site of injury to aorta in patients who manage to reach the hospital for medical care is

a) Ascending aorta

b) Aortic isthmus

c) Descending thoracic aorta

d) Abdominal aorta

Correct Answer - B

Answer- B. Aortic isthmus

- Trauma can result in aortic transection or disruption.
- Traumatic injuries to the aorta are rapidly fatal with most victims dying at the scene of injury.
- Post traumatic aneurysms to the aorta are distinctive by their location.
- The two most common sites are proximal ascending aorta and aortic isthmus, the site of insertion of ligamentum arteriosum.
- Among patients who survive traumatic aortic injury and reach medical care, about 95% have injury to aortic isthmus.

587. 80 kg male with bilateral upper limb, right lower limb with perineum burns 3rd degree, amount of fluid required in first 8 hours is

a) 3920 ml

b) 4920 ml

c) 5920 ml

d) 6560 ml

Correct Answer - D

Answer- D. 6560 ml

- The amount of fluid required for the above patient = $4\text{ml} \times 80 \times 41 = 13120\text{ ml}$.
- Half of the calculated fluid is given in first 8 hrs and half in next 76 hrs.
- So the amount of fluid to be given in the first hrs = total fluid required / 2 = $13120 / 2 = 6560\text{ml}$

588. Best fluid for resuscitation of burns patient

a) Hartmann solution

b) Colloid

c) Normal saline

d) 5% Dextrose

Correct Answer - A

Answer- A. Hartmann solution

Fluid resuscitation begins with an isotonic crystalloid solution - Ringer's lactate solution (RL)(Hartman's solution) k the preferred solution (Normal saline should be avoided as the volumes required for resuscitation may lead to hyperchloremic metabolic acidosis).

589. Longitudinal incision with Z plasty closure is used in which of the following

a) Hand surgery

b) Breast surgery

c) Thyroid surgery

d) Hernia surgery

Correct Answer - A

Answer- A. Hand surgery

- Z-plasty is a versatile plastic surgery technique that is used to improve the functional and cosmetic appearance of scars. It can elongate a contracted scar or rotate the scar tension line.
- Longitudinal incision with Z plasty closure is used in the management of Dupuytren's contracture of hand.

590. Stewart-Treves syndrome is used to described development of

a) Lymphangiosarcoma

b) Rhabdomyoma

c) Angiosarcoma

d) Mesothelioma

Correct Answer - A

Answer- A. Lymphangiosarcoma

Stewart-Treves' syndrome:

- Ulceration, non-healing bruises and raised purple-red nodules in patients with lymphatic disorders, should lead to suspicion of malignancy.
- Lymphangiosarcoma was originally described in postmastectomy oedema (Stewart-Treves'syndrome)

591. Child presents after trauma to head with hyponatremia, volume depletion and increased excretion of urinary Na [>150 mmol/L]. What is the probable diagnosis?

a) Cerebral salt wasting syndrome

b) SIADH

c) Adrenal hemorrhage

d) Autonomic failure

Correct Answer - A

Answer- A. Cerebral salt wasting syndrome

- Electrolyte imbalance is common in traumatic brain injury (TBI), and contributes to brain swelling and to causing seizures.
- Cerebral salt wasting, a poorly understood form of excretory dysregulation in association with brain insult, leads to volume depletion and hyponatraemia.

592. Pyuria found in all except

a) Appendicular abscess

b) CA bladder

c) Renal tuberculosis

d) Vaginosis

Correct Answer - A

Answer- A. Appendicular abscess

Causes of Pyuria

- Urinary tract infections
- STDs like chlamydiae or gonorrhoea or vaginitis
- Genitourinary tuberculosis (Sterile Pyuria)
- Stones in Bladder and ureter
- Pregnancy
- Cystitis or bladder infections
- Viral infections
- Benign and malignant tumours of the urinary system
- Mechanical Trauma
- Parasites like Trichomonas Vaginalis, Giardia Lamblia etc

593. Prehn sign is positive in

a) Acute epididymo-orchitis

b) Chronic orchitis

c) Testicular torsion

d) None

Correct Answer - A

Answer- A. Acute epididymo-orchitis

On elevation of testis the-

- Pain is not relieved in torsion (test is negative)
- Pain relieved in epididymo-orchitis (test is positive)

594. Laparoscopy - pressure in the abdomen of children

a) 2 - 6 mm Hg

b) 8 - 12 mm Hg

c) 14 - 18 mm Hg

d) 20 - 24 mm Hg

Correct Answer - B

Answer- B. 8 - 12 mm Hg

- The optimal intrabdominal pressure for laparoscopy in children has been established to be between 8 - 12 mm Hg, with neonates tolerating lower pressures than elders.

595.

Definitive surgery is a part of which stage of damage control surgery?

a) I

b) II

c) III

d) IV

Correct Answer - D

Answer- D. IV

- Following major injury, protracted surgery in the physiologically unstable patient with the 'deadly triad' - the combination of hypothermia, acidosis and coagulopathy
- 'Damage control' or 'damage limitation surgery' is a concept that originated from naval architecture, whereby a ship was designed to have areas sealed off in the case of damage, to limit flooding.

Stages-

1. Patient selection
2. Control of haemorrhage and control of contamination
3. Resuscitation continued in the intensive care unit
4. Definitive surgery
5. Abdominal closure

596. Everted edge seen in ulcer due to which of the following?

a) Tuberculosis

b) Epithelioma

c) Syphilis

d) Basal cell carcinoma

Correct Answer - B

Answer- B. Epithelioma

characteristic shapes of the edges of ulcers.

1. None-specific ulcer: note the shelving edge.
2. Tuberculous ulcer: note the undermined edge
3. Basal cell carcinoma (rodent ulcer): note the rolled edge, which may exhibit small blood vessels.
4. Epithelioma: note the heaped-up everted edge and irregular thickened base.
5. Syphilis

**597. Management of stage 2 pressure sore,
clean ulcer without cellulitis is**

a) Protective dressing

b) Moist dressing

c) Absorbent dressing

d) Topical antibiotics

Correct Answer - B

Answer- B. Moist dressing

598. For vascular anastomosis sutures of choice

a) Polypropylene

b) Chromic catgut

c) Silk

d) Nylon

Correct Answer - A

Answer- A. Polypropylene

- Vascular anastomoses require an extremely accurate closure as they must be immediately watertight at the end of the operation when the vascular clamps are removed.
- In many cases, some form of prosthetic material or graft may be used which will never be integrated into the body tissues and so the integrity of the suture line needs to be permanent.
- For this reason, polypropylene is one of the best sutures as it is not biodegradable. It is used in its monofilament form, mounted on an atraumatic, curved, round bodied needle.

599. Which of the following is true about venous thrombosis?

a) It affects only the deep venous system

b) Most important factor for development of deep venous thrombosis is hospital admission

c) Coralline thrombus is platelet aggregate surrounded by white blood cells

d) Lung infarction is a common complication of deep venous thrombosis

Correct Answer - B

Answer- B. Most important factor for development of deep venous thrombosis is hospital admission

- Venous thrombosis is the formation of a semi-solid coagulum within the venous system and may occur in the superficial system.
- Patients are at risk of developing a post-thrombotic limb and venous ulceration

Virchow triad-

1. Changes in the vessel wall (endothelial damage)
 2. Stasis, which is diminished blood flow through the veins
 3. Coagulability of blood (thrombophilia)
- The most important factor is a hospital admission for the treatment of a medical or surgical condition.
 - The coralline thrombus then progresses as a propagated loose red fibrin clot, containing many red cells.

600. Which of the following conditions shows susceptibility to squamous cell carcinoma in skin?

a) Epidermodysplasia verruciformis

b) Actinic keratosis

c) Xeroderma pigmentosum

d) All the above

Correct Answer - D

Answer- D. All the above

- Squamous cell carcinoma is the second most common tumor arising on sunexposed sites in older people, exceeded only by basal cell carcinoma.
- The most important cause of cutaneous squamous cell carcinoma is DNA damage induced by exposure to UV light.
- Immunosuppression may contribute to carcinogenesis by reducing host surveillance and increasing the susceptibility of keratinocytes to infection and transformation by oncogenic viruses, particularly human papilloma virus (HPV) subtypes.
- Other risk factors for squamous cell carcinoma include industrial carcinogens (tars and oils), chronic ulcers and draining osteomyelitis, old burn scars, ingestion of arsenicals, ionizing radiation, and (in the oral cavity) tobacco and betel nut chewing.

601. Leheriche syndrome is characterized by presence of arterial insufficiency in

a) Aorto- iliac artery

b) Superficial femoral artery

c) Temporal artery

d) Brachial artery

Correct Answer - A

Answer- A. Aorto- iliac artery

- 1. Brought on by walking
- 2. Not present on taking the first step (unlike osteoarthritis)
- 3. Relieved by standing still
- The pain of claudication is usually felt in the calf because the superficial femoral artery is the most commonly affected.
- Aortoiliac disease (30 per cent of cases) may cause thigh or buttock claudication.
- Buttock claudication in association with sexual impotence resulting from arterial insufficiency is eponymously called Leriche's syndrome. It is very rare.

602. Most common cause of bleeding for massive hemothorax in blunt trauma to chest is from

a) Intercostal vessels

b) Bronchial vessels

c) Pulmonary vessels

d) Internal mammary artery

Correct Answer - A

Answer- A. Intercostal vessels

- The most common cause of massive haemothorax in blunt injury to chest is continuing bleeding from torn intercostal vessels or occasionally from the internal mammary artery.

603. A patient developed wound infection post laparotomy for pyoperitoneum, was treated conservatively. Now, granulation tissue is seen in the wound. Next step in management is

a) Daily dressing

b) Mesh repair

c) Incision and drainage

d) Resuturing with interrupted stitches

Correct Answer - D

Answer- D. Resuturing with interrupted stitches

- Presence of granulation tissue indicates that the wound is healthy and angiogenesis is occurring at the edges and base of the wound.
- This is an indication that the wound can now be safely closed with interrupted sutures without any risk of complications.

604. Hunt Hess scale is used to grade manifestations of

a) Subarachnoid hemorrhage

b) Meningioma

c) Hydrocephalus

d) Tuberculous meningitis

Correct Answer - A

Answer-A. Subarachnoid hemorrhage

- The initial clinical manifestations of SAH are graded using the Hunt-Hess or World Federation of Neurosurgical Societies classification schemes.
- A grading system has therefore been developed to document the severity of patient's disease in order to guide therapy and prognostication.

605. Ligament of Cooper, used in the surgery for femoral hernia repair, is formed by which of the extensions of inguinal ligament?

a) Lacunar ligament

b) Pectineal ligament

c) Ilioinguinal ligament

d) Reflected part of inguinal ligament

Correct Answer - A

Answer-A. Lacunar ligament

It is also called Gimbernat's ligament.

- From the medial end, deep fibres curve horizontally backward to the medial side of pectin pubis forming lacunar ligament.
- This ligament is triangular in shape, with the apex attached to the pubic tubercle.
- Its sharp lateral edge forms the medial boundary of the femoral canal, which is the site of production of femoral hernia.

606. Maximum score of APACHE

a) 41

b) 51

c) 61

d) 71

Correct Answer - D

Answer- D. 71

- APACHE II ('Acute Physiology and Chronic Health Evaluation II') is a severity-of-disease classification system.
- The APACHE II system is the most commonly used SOI scoring system in North America.
- APACHE IV uses a modified statistical model of logistic regression; it is the most recently released version of this scoring system.
- It is applied within 24 hours of admission of a patient to an intensive care unit (ICU): an integer score from 0 (minimum) to 71 (maximum) is computed based on several measurements; higher scores correspond to more severe disease and a higher risk of death.

607. 26 yr old female came for the first time in OPD with lump in breast first investigation

a) USG

b) Mammogram

c) MRI

d) PET scan

Correct Answer - B

Answer- B. Mammogram

- Radiological investigations for the initial assessment for breast lump are either USG or Mammography.
- Since the patient given in the question is a young female. Ultrasonography is a preferred first investigation for evaluation of breast lump.
- ultrasound is particularly useful in young women with dense breasts in whom mammograms are difficult to interpret, and in distinguishing cysts from solid lesions.

608. Fixity of the breast tissue in carcinoma of breast indicates infiltration of

a) Suspensory ligaments

b) Lymphatics

c) Pectoralis muscle and fascia

d) Internal mammary artery

Correct Answer - C

Answer- C. Pectoralis muscle and fascia

- Fixity of the breast tissue is tested by asking the patient to press the hand against the hip forcibly to contract Pectoralis major muscle & moves the breast over the pectoralis fascia in the direction of muscle fibres of the pectoralis major muscle.
- Loss of normal mobility or fixity of the breast tissue indicates spread of cancer cells to underlying pectoralis muscle and fascia.

609. Nipple retraction in Ca breast due to infiltration of

a) Suspensory ligaments

b) Lactiferous ducts

c) Lymphatics

d) Pectoralis fascia

Correct Answer - B

Answer- B. Lactiferous ducts

- It is seen in breast carcinoma due to infiltration of the lactiferous ducts by carcinoma.
- It is due to extension of the growth along the lactiferous ducts and subsequent fibrosis.
- Nipple retraction is circumferential in carcinoma and slit like in periductal mastitis.

610. Surgery for ductal ectasia

a) Microdocheotomy

b) Radical duct excision

c) Radiation

d) Chemotherapy

Correct Answer - B

Answer- B. Radical duct excision

- Duct ectasia of the breast or mammary duct ectasia or plasma cell mastitis is a condition in which the lactiferous
- duct becomes blocked or clogged. This is the most common cause of greenish discharge.

Clinical features

- Nipple discharge of any colour, abscess, mammary duct fistula, subareolar mass and nipple retraction.

Treatment

- Antibiotic therapy may be tried but surgery is mostly required to cure this notoriously difficult condition. Surgery consists of excision of all the major ducts (Hadfield's operation)

611. Surgery for periductal mastitis -

a) Hadfield's operation

b) Patey's mastectomy

c) Modified radical mastectomy

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Hadfield's operation

612. Lady with recent delivery engorged shiny mass on breast under nipple fever

a) Breast abscess

b) Fibroadenosis

c) Sebaceous cyst

d) Fibroadenoma

Correct Answer - A

Answer- A. Breast abscess

Features favouring breast abscess :

- Lactating woman
- Tender swelling
- Pyreia
- Tense shiny overlying skin

613. Hilton method is best used in

a) Breast abscess

b) Axillary abscess

c) Paronychia

d) Pulp abscess

Correct Answer - B

Answer- B. Axillary abscess

- Hilton's method of abscess drainage is chosen when there are plenty of important structures like nerves and vessels around the abscess cavity, like axilla. In this method incision is made only through the skin and subcutaneous tissue. The deep fascia is not incised.

614. Reduction of size and vascularity prior to thyroidectomy is done by

a) Iodides

b) Propylthiouracil

c) Radioiodine

d) Propranolol

Correct Answer - A

Answer- A. Iodides

Effects of iodide/ Lugol's iodine on thyroid:

1. Decrease rate of blood flow to the thyroid
2. Decreased vascularity of the thyroid
3. Decreased intraoperative blood loss during surgery

615. Alvarado score is used for

a) Acute cholecystitis

b) Acute appendicitis

c) Acute apncreatitis

d) Acute epidydimitis

Correct Answer - B

Answer- B. Acute appendicitis

Scoring system for Acute Appendicitis: Alvarado Score:

- 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.

616. Which appendix pain is referred to suprapubic region with pain on internal rotation of hip

a) Pre ileal

b) Pelvic

c) Post ileal

d) Paracolic

Correct Answer - B

Answer- B. Pelvic

Pelvic appendicitis can present with

- Absence of abdominal wall rigidity and tenderness
- Tenderness in retrovesical pouch
- Hypogastric or suprapubic pain
- Obturator sign: pain on internal rotation of the hip

617. Which muscle is irritated by inflamed retrocaecal appendix

a) Psoas major

b) Gluteus maximus

c) Quadratus femoris

d) Obturator internus

Correct Answer - A

Answer- A. Psoas major

- In children with abdominal pain, who hold their right hip in a flexed position to obtain relief from the pain, one should suspect retrocaecal appendicitis causing irritation of the psoas muscle.

618. What permanent deleterious effects are seen, if 25% of the small intestine is resected?

a) Nothing Diarrhea

b) Fat malabsorption syndrome

c) Intestinal failure

d) None

Correct Answer - A

Answer- A. Nothing Diarrhea

- Up to 50 per cent of the small intestine can be surgically removed or bypassed without permanent deleterious effects.

619. Which of the following is not true about Boerhaave syndrome?

- a) Perforation of the esophagus due to barotrauma
- b) Most common site is left posteromedial aspect 3 - 5 cms above the gastroesophageal junction
- c) Pain is the principal early manifestation
- d) Most cases follow a bout of heavy eating or drinking

Correct Answer - B

Answer- B. Most common site is left posteromedial aspect 3 - 5 cms above the gastroesophageal junction

- Boerhaave's syndrome is spontaneous perforation of the esophagus, occurring usually due to severe barotrauma when a person vomits against a closed glottis.
- Most common location of perforation is in the left posterolateral aspect 3-5 cm above the gastroesophageal junction. Second most common site of perforation is at the midthoracic esophagus on the right side.
- The principal early manifestation is pain felt in the chest and upper abdomen.

620. The commonest cause of intestinal obstruction in a 30 yr. old Indian female

a) TB stricture

b) Crohn's ds.

c) Post op. adhesions

d) Adenocarcioma

Correct Answer - C
Ans. is 'c' i.e. Post op. adhesions

621. Which of the following is associated with destruction of myenteric plexus?

a) Hirschsprung disease

b) Secondary Achalasia

c) HPSS

d) GIST

Correct Answer - B

Answer- B. Secondary Achalasia

- Secondary achalasia may arise in Chagas disease, in which *Trypanosoma cruzi* infection causes destruction of the myenteric plexus, failure of peristalsis, and esophageal dilatation.

622. Which of the following is true about gastrointestinal carcinoid tumor?

a) Alcohol has no effect on the flushing attacks

b) Occur most commonly in jejunum

c) Tumors most commonly produce histamine

d) Preoperative octreotide scanning can detect extent of the disease

Correct Answer - D

Answer- D. Preoperative octreotide scanning can detect extent of the disease

- These neuroendocrine tumours occur throughout the gastrointestinal tract, most commonly in the appendix, ileum and rectum in decreasing order of frequency. Appendicular carcinoid tumours are most commonly noted as an incidental finding at appendicectomy.
- Carcinoid tumours arise from Kulchitsky cells at the base of intestinal crypts (of Lieberkuhn)
- The tumours can produce a number of vasoactive peptides, most commonly 5-hydroxytryptamine (serotonin), but also histamine, prostaglandins and kallikrein.
- Classically, the flushing attacks are induced by alcohol.
- The extent of disease can be assessed preoperatively using octreotide scanning, which may detect otherwise clinically apparent primary and secondary tumour.

623. Esophageal carcinoma what is the most important prognostic indicator?

a) Length of involvement

b) Depth of invasion

c) Histological grading

d) Immunohistochemistry

Correct Answer - B

Answer- B. Depth of invasion

- The depth of invasion of the tumor through the wall of esophagus, is the most important prognostic indicator, with considerable independent prognostic significance.

624. Hinchey classification is used for perforations of colon secondary to

a) Trauma

b) Carcinoma

c) Diverticulitis

d) Inflammatory enteropathy

Correct Answer - C

Answer-C. Diverticulitis

Hinchey Classification is used to describe perforations of the colon due to diverticulitis.

- Hinchey I - localised abscess (para-colonic)
- Hinchey II - pelvic abscess
- Hinchey III - purulent peritonitis (the presence of pus in the abdominal cavity)
- Hinchey IV - feculent peritonitis. (Intestinal perforation allowing feces into abdominal cavity)

625. A 50 years labourer, smoker presented with repeated episodes of epigastric pain, associated with occasional vomiting and weight loss. What is the diagnosis

a) Hiatus hernia

b) Gastric ulcer

c) Gastric volvulus

d) Barret's esophagus

Correct Answer - B

Answer- B. Gastric ulcer

- Smoking with epigastric pain and vomiting with weight loss is strongly suggestive of gastric ulcer.

**626. Pain in left hypochondrium vomiting,
diarrhea, malena, weight loss diagnosis**

a) Cholangitis

b) Enterocolitis

c) Zollinger Ellison syndrome

d) Amebiasis

Correct Answer - C

Answer- C. Zollinger Ellison syndrome

- Peptic ulceration is the most common manifestation of Zollinger Ellison syndrome leading to left hypochondriac pain, vomiting and weight loss and ulcers refractory to medical therapy.
- A bleeding ulcer gives rise to malena.

627. Patient is on autocoids for 1 year complains of severe pain epigasrium relieved iv antacids now complains of pain in right iliac fossa and epigastrium with fever and loss of liver dullness diagnosis

a) Duodenal perforation

b) Diverticulitis

c) Gastroenteritis

d) Enteric perforation

Correct Answer - A

Answer- A. Duodenal perforation

Long term therapy with autocoids led to an ulcer that eventually perforated and now the patient has presented early signs of peritonitis.

Clinical features of perfontion of duodenal ulcer

- Perforated duodenal ulcer is characterized by sever constant onset epogastric pain
- Patient looks ill and lies unusually still
- Tachycardia
- Shallow respiration
- Tender with intense guarding and rigidity
- If the air has escaped into peritoneal cavity then liver dullness may be absent
- Peptic ulcer perforation leads to chemical peritonitis initially.

628. 5 year old Boy with something coming out of the anus with pedicle attached to rectal/ anal wall and bright red bleeding- most common diagnosis

a) Juvenile rectal Polyp

b) Pedicle pile

c) Fissure

d) CA Colon

Correct Answer - A

Answer- A. Juvenile rectal Polyp

- Juvenile polyps are the most common type of childhood polyp, occurring in up to 1% of preschool children. They are usually solitary polyps found in the rectum which most commonly present with rectal bleeding.
- These are hamartomatous polyps, which are usually pedunculated but can be sessile.

629. Duhamel procedure is done for

a) Hirschsprung's disease

b) HPSS

c) Meckels diverticulum

d) Volvulus

Correct Answer - A

Answer- A. Hirschsprung's disease

- Surgery in Hirschsprung's disease aims to remove the aganglionic segment and 'pull-through' ganglionic bowel to the anus (e.g. Swenson, Duhamel, Soave and transanal procedures) and can be done in a single stage or in several stages after first establishing a proximal stoma in normally innervated bowel.

630. Treatment surgery for fissure in ano

a) Lateral sphinterotomy

b) Fissurectrny

c) Seton

d) None

Correct Answer - A

Answer- A. Lateral sphinterotomy

Conservative t/t

- Stool bulking agents and stool softners
- Nitric oxide or Glyceryl tinitrate
- Dilatation of the sphincter under GA
- laterd anal sphincterotomy - the intetnal sphincter is divided away from the rtssure itself - usually either in the riglth or the left lateral position
- Anal advancement flap

631. Position of internal hemorrhoid in anus is especially common in

a) 4 O' clock position

b) 11 O' clock position

c) 8 O' clock position

d) 9 O' clock position

Correct Answer - B

Answer- B. 11 O' clock position

- Internal hemorrhoids characteristically lie in 3, 7 and 11 o'clock positions.

632. Splenectomy is not indicated in which of the following pathologies?

a) Sarcoidosis

b) Trauma

c) ITP

d) Hereditary spherocytosis

Correct Answer - A

Answer- A. Sarcoidosis

- General indications for splenectomy include symptomatic splenomegaly, hypersplenism, hemolytic anemia, thrombocytopenia and other cytopenias.

633. During splenectomy, splenic vessels are ligated at which level

a) Near splenic hilum

b) Superior border of pancreas

c) Inferior border of pancreas

d) Midway between the splenic hilum and superior border of pancreas

Correct Answer - B

Answer- B. Superior border of pancreas

- Most surgeons use a midline or transverse left subcostal incision for open splenectomy.
- In elective splenectomy, the gastrosplenic ligament is opened up, and the short gastric vessels are divided.
- The splenic vessels at the superior border of the pancreas are suture ligated

634. Most common variety of mesenteric cyst is?

a) Enterogenous

b) Chylolymphatic

c) Dermoid

d) Urogenital remnant

Correct Answer - B

Answer- B. Chylolymphatic

- Chylolymphatic is the most common variety , probably arising in the congenitally misplaced lymphatic tissue that has no eferent communication with the lymphatic system (most frequently in mesentery of ileum)."

635. Preferred shunt procedure in patient with portal hypertension having acceptable operative risk and adequate liver function is

a) End to side portocaval shunt

b) End to end portocaval shunt

c) Mesocaval shunt

d) Distal splenorenal shunt

Correct Answer - D

Answer- D. Distal splenorenal shunt

- Portosystemic shunt procedures such as splenorenal shunt and mesocaval shunt, may be indicated in patients with complication of portal hypertension.
- Given the early occlusion rate and the need for constant surveillance, it is generally advised that TIPS should be reserved for Child C classification of cirrhosis, whereas a distal splenorenal shunt is safe, durable, preferred and effective treatment in patients with acceptable operative risk and still good liver function.

636. Not true about choledochal cyst is:

- a) Associated with anomalous junction of the pancreatic and biliary duct
- b) Type 2 is most common
- c) Surgical removal is the treatment of choice
- d) If ruptures can cause biliary peritonitis

Correct Answer - B
Ans is b i.e. Type 2 is most common

637. A patient presents with severe pain in right upper quadrant associated with nausea and vomiting, exacerbation during inspiration and tenderness on palpation. Which of the following is the imaging modality of choice for the above patient?

a) Ultrasonography

b) CT Scan

c) MRI

d) X ray

Correct Answer - A

Answer- A. Ultrasonography

- Patient with severe pain in right upper quadrant associated with nausea and vomiting, exacerbation during inspiration and tenderness on palpation is suggestive of probable case of acute cholecystitis with positive murphys sign. Ultrasonography is the modality of choice for the diagnosis of this condition.

638. Courvoiser's law exception

a) Double impaction

b) Portal lymphadenopathy

c) Periapillary CA

d) None

Correct Answer - A

Answer- A. Double impaction

Courvoisier's law states that in the presence of an enlarged gall bladder which is nontender and accompanied with jaundice the cause is unlikely to be gallstones. This is because gall stones are formed over a longer period of time, and this results in a shrunken, fibrotic gall bladder which does not distend easily.

Exception to Courvoisier's law:

1. Double impaction
2. Pancreatic calculus obstruction ampulla
3. Oriental cholangio hepatitis
4. Mirizzi syndrome

639.

The possibility of liver lobe resection is considered in patients with carcinoma of gall bladder from/ beyond which stage of gall bladder carcinoma?

a) IA

b) IIA

c) III

d) IV

Correct Answer - B

Answer- B. IIA

- Radical en-bloc resections which may include segmental or extended hepatectomy, bile duct resection and regional lymphadenectomy should be considered in selected patients. The aim is to remove the tumour entirely and achieve negative histopathological margins. This option can be considered in the operable patients with carcinoma of gall bladder, who come under stage IIA of gall bladder carcinoma and beyond.

640. Maylard incision involves a trasverse cut through which of the following muscles?

a) Rectus abdominis

b) Serratus anterior

c) Pectoralis major

d) Psoas major

Correct Answer - A

Answer- A. Rectus abdominis

- Mayland Incision is a surgical incision in which a transverse cut is made on rectus abdominis muscle to allow wider access to the pelvic cavity. It is also called Mackenrodt incision.

641. Which of the following predisposes to testicular germ cell tumors?

a) Klinefelter syndrome

b) Testicular carcinoma in sibling

c) Cryptorchidism

d) All the above

Correct Answer - D

Answer- D. All the above

- Cryptorchidism
- Testicular feminization syndrome
- GCT of one testis is a risk factor for the other testis
- Testicular Ca in a sibling
- Klinefelter syndrome - is associated with mediastinal GCT

642. Pain in region of penis in acute urethritis is typically experienced

a) Before micturition

b) After micturition

c) During micturition

d) Irrespective micturition

Correct Answer - C

Answer- C. During micturition

Causes of pain in the penis experienced during micturition

Disease of the urethra

- Acute inflammation, gonorrhoeal/non-specific urethritis (NSU) chemical or other
- The passage or impaction of a calculus
- Stricture of the urethra
- Injury to the urethra
- Foreign body in the urethra

Disease of the prostate

- Acute prostatitis
- Prostatic abscess
- Prostatic carcinoma
- Diseases of the bladder
- Acute cystitis
- Bladder calculus
- Pedunculated bladder carcinoma

643. Yoyo reflux

a) Duplication of ureter

b) Polycystic Kidney

c) Mellutary sponge Kidney

d) Pseudo kidney

Correct Answer - A

Answer- A. Duplication of ureter

- Reflux of the urine from one limb of the collecting system to the other limb, rather than down towards the bladder is called yo-yo reflux (saddle reflux)
- Cause : Duplication of ureters, partial duplication of ureters, duplicate renal pelvis

644. 16 F foleys is used in

a) Acute urinary retention

b) CA penis

c) Pyonephrosis

d) None

Correct Answer - A

Answer- A. Acute urinary retention

16F and 18F foleys are mainly used for adults

- 8F and 10F are mainly used for children
- Acute urinary retention is an indication for catheterization

645. Which of the following is extended criteria donor [ECD] for kidney transplantation?

a) Donors with extremes of age

b) Donors with excess alcohol intake

c) Donors having cerebrovascular accident

d) All the above

Correct Answer - D

Answer- D. All the above

- With the limited number of organs available for transplantation, donors who would previously been declined are now being accepted.
- Criteria include extremes of age, death for intracranial hemorrhage, organ specific diseases such as excess alcohol intake or hepatitis, general co morbidities such as diabetes, cerebrovascular accident or cardiovascular instability.
- The long-term outcomes of the transplants performed from ECD are poorer than standard criteria donors, and the potential risks to the recipients must be weighed against the benefits. There is an increased risk of delayed graft function.

646. 35 years male presents with a swelling in scrotum that is non tender and separate from testes and on transillumination, chinese lantern pattern is seen diagnosis

a) Vaginal hydrocele

b) Inguinal hernia

c) Epididymal cyst

d) Varicocele

Correct Answer - C

Answer- C. Epididymal cyst

- Cysts of the epididymis (multiloculated epididymal cyst, spermatocele) are not surrounded by fluid and for this reason are felt as swellings above, behind the testis, which is also easily palpable in this situation.
- Because of the septation, multiloculated epididymal cysts have a characteristic 'Chinese lantern' appearance on transillumination.

647. Most Common congenital GI Tract anomaly is

a) Meckels diverticulum

b) Patent rachus

c) Ileal atresia

d) Jejunal aplasia

Correct Answer - A

Answer- A. Meckels diverticulum

- Meckel's diverticulum is a true diverticulum as it has all the 3 layers of the intestine.
- It's the most common congenital anomaly of the gastrointestinal tract

648. Treatment of stage I bladder cancer is

a) Radical cystectomy

b) Endoscopic removal with intravesical chemotherapy

c) Chemotherapy

d) Radiotherapy

Correct Answer - B

Answer- B. Endoscopic removal with intravesical chemotherapy

649. Which of the following is used to differentiate between hypercalcemia of malignancy from primary hyperparathyroidism?

a) Hydrocortisone suppression test

b) Glucose challenge test

c) 24 hour urine calcium measurement

d) Percentage of ionized calcium

Correct Answer - A

Answer- A. Hydrocortisone suppression test

If doubt exists, hydrocortisone suppression test is of value.

- If the test is performed as originally described, (120 mg hydrocortisone per day for 10 days, correcting the serum calcium for haemodilution), it provides an excellent discrimination, since significant suppression of serum calcium does not occur in primary hyperparathyroidism, whereas malignant hypercalcemia is usually completely alleviated.

650. What is proband in pedigree?

a) Male child of disease

b) Female child of diseased

c) Diseased individual

d) Pregnancy

Correct Answer - C

Ans. is 'c' i.e., Diseased individual

- Pedigree analysis is the analysis of human gene transmission. Pedigree chart is a diagrammatic method of illustrating the inheritance of genes within a family.
- The starting point is often the identification of an affected individual, called the `propositus' or `proband', i.e. propositus or proband is the individual which is studied in a pedigree, such as the individual with a certain disease or other inherited interest.

651. All of following may be causes of precocious puberty in girls except -

a) Hypothalamic hamartoma

b) McCune Albright syndrome

c) Granulosa cell tumor of human ovary

d) Congenital 21- α hydroxylase deficiency

Correct Answer - D

Ans. is 'd' i.e., Congenital 21-hydroxylase

o Congenital 21 hydroxylase deficiency causes precocious puberty in male due to excess of androgens.

o In female, it results in virilization.

652. WHO defines adolescent age between ?

a) 10-19 years of age

b) 10-14 years of age

c) 10-25 years of age

d) 9-14 years of age

Correct Answer - A

Ans. is 'a' i.e., 10 - 19 Years of age

653. Not seen in kwashiorkor -

a) Apathy

b) Flaky paint dermatosis

c) Poor appetite

d) Increased albumin

Correct Answer - D

Ans. is 'd' i.e., Increased albumin

o Albumin level is low in kwashiorkor, which results in generalized edema.

o Other options are true regarding kwashiorkor.

654. 1st symptom of vitamin A deficiency:
March 2009

a) Conjunctival xerosis

b) Bitot's spots

c) Night blindness

d) Corneal ulcer

Correct Answer - C

Ans. C: Night blindness

Vitamin A deficiency is common in developing countries but rarely seen in developed countries. Night blindness is one of the first signs of vitamin A deficiency.

Xerophthalmia and complete blindness can also occur since Vitamin A has a major role in phototransduction.

Vitamin A deficiency also diminishes the ability to fight infections. In countries where children are not immunized, infectious disease like measles, have higher fatality rates.

Even mild, subclinical deficiency can also be a problem, as it may increase children's risk of developing respiratory and diarrheal infections, decrease growth rate, slow bone development and decrease likelihood of survival from serious illness.

655. Index of duration of malnutrition is -

a) Weight for height

b) Height for age

c) Weight for age

d) None

Correct Answer - B

Ans. is 'b' i.e., Height for age

o Stunting (deficit in height for age) generally points towards a chronic course of malnutrition. - *O.P. Ghai* -

Height is a stable measurement of growth as opposed to body weight. Whereas weight reflects only the present health status of the child, height indicates the events in the past also".

656. Casal's paint necklace is caused by:

a) Lichen planus

b) Pellagra

c) Pernicious anemia

d) SLE

Correct Answer - B
B i.e. Pellagra

657. Which of the following type of cell is involved in myelination of the CNS?

a) Microglia

b) Astrocytes

c) Macrophages

d) Oligodendrocytes

Correct Answer - D

Oligodendroglial cells are a type of neuroglial cells, they myelinate the nerve fibre of the central nervous system.

The formation of a myelin sheath is the result of a process from an oligodendrocyte spiralling around an axon so that the cytoplasm is extruded until the opposite membranes meet, thus forming a multi-layered lipoprotein coat with a node of Ranvier at each end.

It has multiple cytoplasmic processes and myelinate several axons at the same time.

Myelination of the cortex begins at 7-8 mo gestation and continues into adolescence and young adulthood. It proceeds in a posterior to anterior fashion, allowing progressive maturation of sensory, motor, and finally associative pathways.

Must know:

- **Peripheral nerves are myelinated from the schwann cells.** Loss of myelin, known as demyelination, results in disturbance of the ability to transmit a nerve impulse through the demyelinated segment and this has serious consequences for function.
- Damage to one oligodendrocyte, therefore, can result in loss of myelin from many axons, whereas damage to a Schwann cell only results in loss of myelin from a single axon.

Good to know:

- Tracts in the nervous system get myelinated at about the time they

start to function.

658. Which of the following is the most likely diagnosis in case of a child with increased cough at night?

a) Pneumonia

b) Asthma

c) Bronchiolitis

d) Laryngomalacia

Correct Answer - B

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

Variation in intensity of cough

1. Worse in night and early morning → Asthma, Persistent moist
2. Seasonal variation → Asthma, Bronchitis
3. Postural variation → Bronchiectasis, Lung abscess

659. A child is brought to the paediatric OPD with fever of 24 hours duration. History reveals 3 episodes of chest infection and passage of foul smelling stools. The most probable diagnosis is-

a) Cystic Fibrosis

b) Maple Syrup urine Disease

c) Bilirubin Congugation Defect

d) Criggler Najjar Syndrome

Correct Answer - A

Ans. is 'a' i.e., Cystic Fibrosis

o Recurrent chest infection in a child with evidence of exocrine pancreatic insufficiency (bulky, foul smelling stool) suggest a diagnosis of cystic fibrosis.

660. Which is the baseline investigation in the case of an acute abdomen in this high - tech era -

a) Abdomen CT

b) Abdomen X - Ray

c) USG

d) Colonoscopy

Correct Answer - B
Ans. is 'b' i.e., Abdomen X-Ray

661. Which of the following is not elevated in a child presenting with jaundice, icterus, pruritus and clay-colored stools?

a) 5' nucleotidase

b) Alkaline phosphatase

c) Glutamate dehydrogenase

d) Gamma glutamyl transpeptidase

Correct Answer - C

Ans. C. Glutamate dehydrogenase

(Ref: HARRISON 19/E PG-1997, 18/E, P2530)

Glutamate dehydrogenase is not elevated in obstructive jaundice. Liver diseases in which necrosis of hepatocytes is the predominant event, such as toxic liver damage or hypoxic liver disease, are characterized by high serum GLDH levels. GLDH is important for distinguishing between acute viral hepatitis and acute toxic liver necrosis or acute hypoxic liver disease, particularly.

Gamma glutamyl transpeptidase is important to differentiate between neonatal hepatitis and biliary atresia in infant with jaundice

662. Hutchinson's triad of congenital syphilis includes all of the following except

a) Eighth nerve deafness

b) Interstitial keratitis

c) Hutchinson's teeth

d) Saddle nose

Correct Answer - D
Ans. D. Saddle nose

663. All of the following are features of systemic Juvenile Rheumatoid Arthritis except-

a) Uveitis

b) Rash

c) Fever

d) Hepatosplenomegaly

Correct Answer - A

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

o The eye manifestation are seen in Pauciarticular and Polyarticular JRA *but not in systemic JRA.*

664. A baby is born with meconium stained liquor which of the following is taken account of in terming a baby vigorous except -

a) Tone

b) Colour

c) Respiration

d) All

Correct Answer - B

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

Resuscitation of neonate born through meconium-stained liquor (MSL)

o When baby passes meconium in utero, there is a chance that the meconium will be aspirated into infant's mouth and potentially into the trachea and lungs.

o Appropriate steps must be taken immediately after delivery to reduce the risk of serious consequences resulting from aspiration of meconium.

o Intrapartum nasopharyngeal suctioning just after the delivery of head is no longer recommended as it does not reduce the risk of meconium aspiration syndrome and, on rare occasions, may cause nasopharyngeal trauma or a cardiac arrhythmia.

The first step after delivery is to identify whether the newborn is vigorous or non-vigorous : ?

A) Vigorous newborn

A newborn is classified as vigorous, if he has all the three signs are present : ?

- 1) *Strong respiratory effort*
- 2) *Good muscle tone*
- 3) *Heart rate greater than 100*

LI The vigorous child does not require any tracheal suctioning and the usual initial steps of resuscitation are provided, i.e., provide warmth, positioning, suctioning of mouth and nose (not tracheal suctioning), Dry, stimulate and O₂ if necessary.

B) Non-vigorous newborn

If any of the above three signs is present, the newborn is classified as non-vigorous.

For non-vigorous child, the *initial steps are modified* :
Place the baby under radiant warmer and postpone suctioning to prevent stimulation of posterior pharyngeal wall that can cause bradycardia.

ii) *Residual meconium in the mouth and posterior pharynx should be removed by suctioning under direct vision using a laryngoscope.*

iii) *The trachea should then be intubated and meconium suctioned from the lower airway. Tracheal suctioning is best done by applying suction directly to the endotracheal tube.*

After providing initial steps, the further management is same as with resuscitation for other conditions (See previous explanation).

665. Which of the following is not a component of Kangaroo mother care (KMC)?

a) Skin to skin contact

b) Supplementary nutrition

c) Exclusive breast feeding

d) Early discharge and follow-up

Correct Answer - B

Ans. b. Supplementary nutrition

Kangaroo position

The kangaroo position consists of skin-to-skin contact (SSC) between the mother and the infant in a strictly vertical position, between the mother's breasts and under her clothes.

SSC should be started as early as possible after birth and can be of two types depending upon the duration: continuous or intermittent.

Kangaroo nutrition

This can be exclusive breastfeeding/fortification.

. Kangaroo nutrition is the delivery of nutrition to "kangarooed" infants as soon as oral feeding is possible.

. It is based on exclusive breastfeeding by direct sucking, whenever possible.

. Goal is to provide exclusive or nearly exclusive breastfeeding with fortification, if needed.

. Breastfeeding is an integral component of KMC and it might contribute to significant gains in neurological development and IQ

666. Which of the following does not describe an infant "at risk" ?

a) Third child

b) Birth weight less than 2.5 kg

c) On artificial feed

d) Twins

Correct Answer - A

Ans. is 'a' i.e., Third child

Identification of 'At Risk' Infants

1. Birth weight < 2.5 Kg
2. Twins
3. Birth order 5 or more
4. Artificial feeding
5. Weight below 70% of expected weight (i.e. grade II & III malnutrition)
6. Failure to gain weight during 3 successive months
7. Children with PEM, Diarrhea.
8. Working mother, one parent.
9. Spacing of less than 1 year.

667. All are seen in treacher collin syndrome except

a) Conductive deafness

b) Cleft palate

c) Mandibular hypoplasia

d) Choanal atresia

Correct Answer - D

Ans. is 'd' i.e., Choanal atresia

Treacher collins syndrome

- It is rare condition that presents several craniofacial deformities of different levels.
- This is a congenital malformation involving the first and second branchial arches.
- The disorder is characterized by abnormalities of the auricular pinna, hypoplasia of facial bones, antimongoloid slanting palpebral fissures with coloboma of the lower eyelids and cleft palate.
- Important clinical findings are :-
 1. Antimongoloid palpebral fissures
 2. Malformed malleus and incus (normal stapes)
 3. Coloboma of lower lid
 4. **Conductive deafness**
 5. **Hypoplasia of mandible** (micrognathia) and molar bones
 6. **Cleft palate**
 7. **Malformed pinna and meatal atresia**
- It is the most common benign neoplasm of nasopharynx.
- It is a highly vascular tumor and blood supply of the tumor most commonly arises from the internal maxillary artery.
- Juvenile nasopharyngeal angiofibroma (JNA) occurs almost

exclusively in males.

- Female with Juvenile nasopharyngeal angiofibroma (JNA) should undergo genetic testing.
- Onset is most commonly in the second decades, the range is 7-19 years.
- The exact cause is unknown. As the tumour is predominantly seen in adolescent males in the second decade of life, it is thought to be testosterone dependent.
- The most common site is posterior part of nasal cavity close to the margin of sphenopalatine foramen.
- The tumor starts adjacent to the sphenopalatine foramen.
- Large tumors are frequently bilobed or dumbbell shaped, with one portion of tumor filling the nasopharynx and the other portion extending to the pterygopalatine fossa.

Clinical features

- Symptoms depend on spread of tumour to nasal cavity, paranasal sinuses, pterygomaxillary fossa, infratemporal fossa, cheek, orbits (through inferior orbital fissure), cranial cavity (most common site is middle cranial fossa).
- Nasal obstruction (80-90%) is the most common symptom, especially in the initial stages. This results in denasal speech, hyposmia, broadening of nasal bridge.
- Spontaneous profuse & recurrent epistaxis is the second most common symptom
- Otolgia, conductive hearing loss, serous otitis media, due to eustachian tube obstruction.
- Pink or purplish mass obstructing one or both choanae in nasopharynx.
- Tumour in the orbit causes : proptosis; and *frog-face deformity*; diplopia and diminished vision.
- Tumour in infratemporal fossa can cause trismus and bulge of parotid.
- II, III, IV, V, VI cranial nerve can be involved.
- Splaying of nasal bones.
- Swelling of cheek and fullness of face.

Diagnosis and treatment

- Contrast CT is the investigation of choice.

- Biopsy should be avoided as it can cause severe bleeding.
- Surgical excision is the treatment of choice.

668. The following is not a feature of pierre – Robin syndrome -

a) Hearing defect

b) Coloboma Iris

c) Respiratory distress

d) Mandibular hypoplasia

Correct Answer - B

Ans. is 'b' i.e., Coloboma iris

Pierre Robin syndrome consists of -

- Micrognathia
- Fore shortened floor of mouth
- CHDs
- Cleft palate or high arched palate
- Mandibular hypoplasia (Micrognathia)
- Respiratory obstruction
- Normal size tongue

669. Gilbert syndrome, true all except ?

a) Causes cirrhosis

b) Autosomal dominant

c) Normal liver function test

d) Normal histology

Correct Answer - A

Ans. is 'a' i.e., Causes cirrhosis

Gilbert's Syndrome: ?

- o It is an autosomal dominant condition.
- o It is characterized by unconjugated hyperbilirubinemia (normally the bilirubin is transported into liver cells by intracellular proteins. In the liver bilirubin is conjugated. This conjugation is brought about by certain enzymes. In Gilbert's syndrome these enzymes are absent which cause unconjugated hyperbilirubinemia).
- The hyperbilirubinemia is usually precipitated by following conditions – Stress, Fatigue, Alcohol use, reduced calorie intake, intercurrent illness.
- The hepatic biochemical tests are normal except for elevated bilirubin level (serum bilirubin concentration are usually $< 3\text{mg/dl}$)
Embryonal carcinoma The hepatic histology is normal
There is no association with cirrhosis.

670. A 6 month old child with Tetralogy of Fallot develops cyanotic spell initiated by crying. Which one of the following drugs you would like to avoid-

a) Sodium bicarbonate

b) Propranolol

c) Phenylephrine

d) Isoprenaline

Correct Answer - D

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

- In Tetralogy of Fallot there is right outflow obstruction due to pulmonary stenosis with supraventricular pulmonary artery obstruction. *In case of severe obstruction, the right ventricular pressure becomes greater than the left ventricular pressure and the deoxygenated blood starts moving to the left ventricle resulting in severe cyanosis and erythrocytosis.*

671. For TOF management in antenatal period includes ?

a) Balloon valvotomy

b) Open heart surgery

c) Karyotyping

d) Aspirin

Correct Answer - C

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

- TOF has been associated with untreated maternal diabetes, phenylketonuria, and intake of retinoic acid.
- Associated chromosomal anomalies occur in 30% cases and include trisomies 21, 18, 13 and 22q11 microdeletion, especially in pulmonary atresia and absent pulmonary valve syndrome (APVS).
- There is also a high association with extra - cardiac anomalies in particular, abdominal and thoracic abnormalities.
- When a TOF is diagnosed during fetal life, karyotyping and targeted morphologic ultrasound examination should be offered.
- Isolated TOF → Good prognosis in TOF with pulmonary stenosis (>90% survival after surgery).
- However, other forms of TOF such as pulmonary atresia and absent pulmonary valve syndrome do not have a good prognosis (moderate prognosis for pulmonary atresia and bad prognosis for APVS).

672. Ductus dependent blood flow is required for all of these congenital heart diseases except

a) Persistent truncus arteriosus

b) Hypoplastic left heart syndrome

c) Pulmonary stenosis

d) TGA with intact ventricular septum

Correct Answer - A

Persistent truncus arteriosus [ReP V. Mohan Reddy. *Cardiac Surgery for Premature and Low Birth Weight Neonates, Pediatric Cardiac Surgery Annual of the Seminars in Thoracic and Cardiovascular Surgery* 2003; 4; 271-76]

- Congenital heart disease in the newborn can be broadly categorized by the relationship between the patient's cardiac defect and the patent ductus arteriosus and this categorization yields four distinct groups.
- *First are newborns dependent on a patent ductus arteriosus (PDA) for pulmonary blood flow.*
- *Second are newborns dependent on the PDA for systemic blood flow.*
- *Third are those dependent on the patent ductus for proper mixing of oxygenated blood*
- *Fourthly are neonates with a non- ductal dependent circulation.*
- *For the ductal dependent group, "intravenous prostaglandin" (E-1) is used as necessary to maintain ductal patency and is the single most important step in supporting these patients to diagnosis and definitive therapy.*

- *Nevertheless, all newborns ductal dependent for systemic or pulmonary blood flow require an intervention, surgical or cardiologic to eliminate ductal dependence prior to discharge.*

1. *Pulmonary flow ductal dependence*

- *Newborns with congenital heart disease who are dependent on the patency of their ductus for pulmonary blood flow present with varying degrees of cyanosis.*

- *Critical Pulmonary Valve Stenosis with Intact Ventricular Septum*

- *Tricuspid Atresia*

- *Tetralogy of Fallot*

2. *Systemic flow ductal dependence*

- *These newborns are dependent on their ductus arteriosus for systemic blood flow and unlike the babies who are pulmonary flow dependent, these newborns present with severely decreased cardiac output.*

- *This decreased systemic flow is characterized by pallor, diminished peripheral pulses, low urine output, cool extremities and varying degrees of metabolic acidosis.*

Included are newborns born with left ventricular outflow tract obstruction at various levels.

Congenital Valvular Aortic Stenosis

Coarctation of the Aorta

- *Interrupted Aortic Arch*

Hypoplastic Left Heart Syndrome (HLHS)

3. *Oxygenation ductal dependence*

- *These are babies who are born with congenital heart disease that requires a patent ductus for adequate mixing of saturated and desaturated blood.*

- *Transposition of great arteries*

4. *Ductal independence*

- *These are neonates who are not dependent on a patent ductus but still require urgent operation*

- *Total anomalous pulmonary venous return (TAPVR)*

- *Truncus Arteriosus*

- *Anomalous origin of the left main coronary artery from the pulmonary artery.*

673. Tuft of hair over the lumbosacral region in a new born is suggestive of ?

a) Spina bifida occulta

b) Sinus tract

c) Tumor

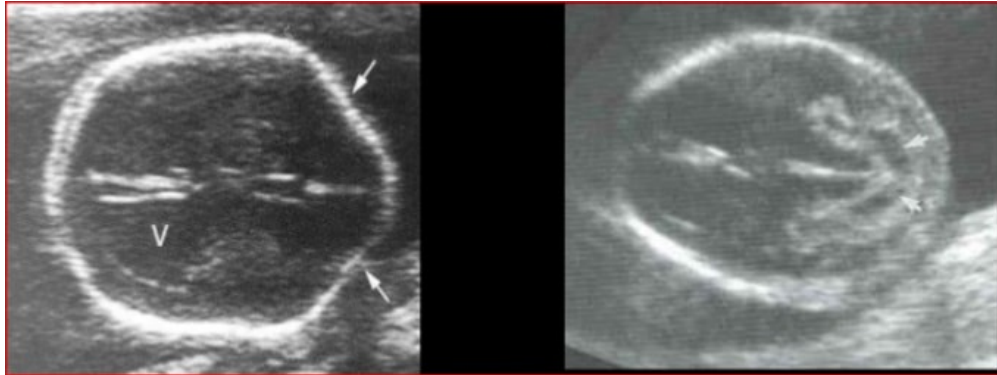
d) Any of the above

Correct Answer - D

Ans. d. Any of the above

- Tufts of hair over the lumbosacral spine suggest an underlying abnormality, such as occult spina bifida, a sinus tract, or a tumor.

674. The following type of fetal ultrasound is seen in which condition?



a) Arnold Chiari Malformation

b) Hydrocephalus

c) Down Syndrome

d) Lymphoma

Correct Answer - A

Ans:A.)Arnold Chiari Malformation.

Image shows:Typical frontal 'pinching' of calvarium gives a 'lemon' appearance of the skull, and a 'banana' shaped cerebellum is seen due to a shallow posterior fossa. These are tell tale signs of a shallow posterior fossa anomalies or Chiari malformation.

Arnold Chiari Malformation

- Chiari I malformation describes low-lying cerebellar tonsils without other congenital brain malformations.
- Chiari II malformation is a complex anomaly with skull, dura, brain, spine and spinal cord manifestations, which usually presents in early childhood or in infancy. This disorder is usually associated with the spinal defect myelomeningocele.

675. Content of meningocele?

a) Dura mater

b) Spinal cord

c) Brain mater

d) Cauda equina

Correct Answer - A

Ans. is 'a' i.e., Dura mater

Meningocele

- There is protrusion of meninges (dura mater, arachnoid mater) through a defect in neural arch. This contains only CSF. There may be associated genital tract abnormalities, e.g. vaginal septa and rectovaginal fistula.

676. Nephrotic syndrome is characterised by

a) Proteinuria

b) Hyperlipidemia

c) Oedema

d) All

Correct Answer - D

Ans. is 'a' i.e., Proteinuria; 'b' i.e., Hyperlipidemia; 'c' i.e., Oedema

Pathophysiology of nephrotic syndrome

Proteinuria

- o The most important feature of nephrotic syndrome is massive proteinuria (>3.5 gm/day)
- o Proteinuria results from altered permeability of glomerular filtration barrier for protein.
- o The largest proportion of protein lost in the urine is albumin but globulins are also excreted in some diseases. The ratio of low to high molecular weight proteins in urine in various cases of syndrome is a manifestation of the selectivity of proteinuria. A *highly selective proteinuria* consists mostly of low molecular weight proteins, i.e. *albumin & transferrin*, where as *apoorly selective proteinuria* consists of higher molecular weight *globulin* in addition to albumin.

Edema

- o Proteinuria leads to *hypoalbuminemia* that results in decreased colloid osmotic pressure edema. Hyperlipidemia
- o Increased synthesis of lipoproteins by liver.
- o Decreased catabolism of lipids.
- o There is increased cholesterol, triglycerides VLDL, and LDL.

Lipiduria

- o Hyperlipidemia results in lipiduria due to excessive leakiness of glomerular filtration barrier

glomerular filtration barrier.

677. A child with nephrotic syndrome following an episode of diarrhea presented with acute kidney injury with a creatinine of 4.5. All of the following are possible reasons except?

a) Excess furosemide

b) Diarrhea water depletion

c) Renal vein thrombosis

d) Steroid induced diabetes

Correct Answer - D

Ans. d. Steroid induced diabetes

Massive proteinuria, with the daily loss of 3.5 gm or more of protein

Hypoalbuminemia, with plasma albumin levels < 3 gm/dl

Generalized edema

Hyperlipidemia and lipiduria

Steroid induced diabetes is not the cause of acute kidney injury in patients of nephrotic syndrome who present with episode of diarrhea and raised creatinine.

678. 8 year old child with hematuria in 5 days after throat infection?

a) Post streptococcal nephropathy

b) Ig A nephropathy

c) Nephrotic syndrome

d) can be a or b

Correct Answer - B

Ans. is 'b'i.e., Ig A Nephropathy

IgA nephropathy

- Predominant deposition of IgA in glomeruli.
- RECURRENT episode of gross hematuria that also precipitated by URTI in last 2-5 days.

PSGN

- Acute GN following infection by group A -hemolytic streptococci.
- Common in school age children. o Streptococcal infection usually of throat (4 or 12 strain) or skin (strain 49) by 1-4 week prior to AGN.
- Edema, oliguria, hypertension, ARF, *hematuria of abrupt onset*.

679. Acute mesenteric lymphadenitis is caused by -

a) E. coli

b) a-hemolytic streptococci

c) Hemophilus

d) Yersinia

Correct Answer - D

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

Acute mesenteric lymphadenitis is the diagnosis usually given when enlarged, slightly reddened lymphnodes are encountered at the root of mesentery along with normal appendix, when a pt. suspected of appendicitis is opened. *"Whether this is a single, discrete entity is unclear, since the causative factor is not known. Some of these patients have infection with Y. pseudotuberculosis or Y. enterocolytica, in which case the diagnosis can be established by culture of the mesenteric nodes or by serologic titres. Children seem to be affected more frequently than men."*

680. Osteogenesis imperfecta is a group of diseases characterized by genetic mutations which lead to?

a) Shortened $\alpha 1(I)$ collagen chains

b) Increased processing of procollagen chains

c) Decreased formation of hydroxylysine residues in collagen

d) Decreased synthesis of $\alpha 2(I)$ collagen chains

Correct Answer - A

Collagen is a fibrous protein composed of 3 chains which form the collagen triple helix. Several different types of collagen exist which vary in the types and combinations of the 3 chains forming the collagen helix.

Each collagen chain is the product of separate genes.

For example, the type of collagen found in skin, arteries, bone, and tendons, Type I Collagen, is composed of 2 $\alpha 1(I)$ chains and 1 $\alpha 2(I)$ chain. Every third amino acid residue of all of the collagen chains is glycine.

This allows the chains to intertwine with glycine at the center. Osteogenesis imperfecta is a disease consisting of at least 4 clinically, genetically, and biochemically distinguishable disorders.

All are characterized by multiple bone fractures which result in bone deformities. Mutations leading to shortened $\alpha 1(I)$ chains cause many of these variants. ***The short $\alpha 1(I)$ chain associates with normal $\alpha 1(I)$ chains and $\alpha 2(I)$ chains which prevents normal helix formation. Defective molecules are degraded leading to weakened collagen structures.***

Other forms of osteogenesis imperfecta are due to mutations in which glycine residues are changed to other amino acids. This leads to destabilization of the collagen helix because of the larger amino acid forced to the center of the helix structure. A decrease in hydroxyproline occurs in scurvy. This occurs because ascorbic acid (vitamin C) is necessary to form the hydroxyproline.

With decreased amounts of hydroxyproline in the collagen molecule, the helix is less stable. The result is deficient growth and poor wound healing in the individual with scurvy. The disease Ehlers-Danlos VI is characterized by a decrease in the enzyme lysyl hydroxylase, the enzyme responsible for the formation of hydroxylysine. The decrease in hydroxylysine in collagen results in less stable cross-linking of the collagen molecules.

Ref: Prockop D.J., Bateman J.F. (2012). Chapter 363. Heritable Disorders of Connective Tissue. In D.L. Longo, A.S. Fauci, D.L. Kasper, S.L. Hauser, J.L. Jameson, J. Loscalzo (Eds), *Harrison's Principles of Internal Medicine*, 18e.

**681. In congenital adrenal hyperplasia,
deficient enzyme is - most woman**

a) 11(3 hydroxylase deficiency

b) 21 a hydroxylase deficiency

c) 3a hydroxylase deficiency

d) 17a hydroxylase deficiency

Correct Answer - B

Ans. is 'b' i.e., 21-a Hydroxylase

Congenital adrenal hyperplasia (CAH)

- Group of AR disorder
- MC adrenal disorder in childhood
- Most common 21-hydroxylase deficiency
- *In 21a-hydroxylase deficiency*
- There is deficiency of mineralocorticoids & glucocorticoid.
- This leads to hypoglycemia, hyponatremia

682. Maffucci syndrome is associated with which bone tumor?

a) Enchondroma

b) Osteochondroma

c) Multiple myeloma

d) Chondrosarcoma

Correct Answer - A

Answer- A. Enchondroma

- Enchondroma is a benign tumor characterized by the formation of mature hyaline cartilage.
 - The most common site is short tubular bones of hand, i.e., Phalanges (most common) and metatarsals. When tumor is located centrally in the bone, it is called enchondroma. When it is located on the surface (juxtacortical) it is called chondroma.
- Mostly enchondromas are solitary, however following syndromes may have multiple enchondroma:-**
1. Ollier's disease
 2. Maffucci's syndrome

683. What is the age of tendon transfer in post polio residual paralysis

a) <6 months

b) 1 year

c) 2 years

d) >5 years

Correct Answer - D

Answer- D. >5 years

The available musclepower is redistributed either to equalize an unbalanced paralysis, or to use the motorpower for a more useful function.

1. Transfer of extensor hallucis longus (EHL) from the distal phalanx of great toe to the neck of the first metatarsal (modified Jone's operation). This is done to correct first metatarsal drop in case of tibialis anterior muscle weakness
2. Transfer of peronius tertious and brevis muscles (evertors of the foot) to the dorsum of the foot. The transfer is required in a foot with dorsiflexor weakness. Evertors can be spared for more useful function of dorsiflexion of the foot
3. Hamstring (knee flexors) transfer to the quadriceps muscle to support a weak knee extensor

684. Which of the following is seen in popliteal entrapment syndrome

a) Evidence of atherosclerosis

b) Exercise induced calf claudications

c) Abnormal relation between popliteal artery and lateral head of gastrocnemius

d) Decreased ankle pulses with ankle extension

Correct Answer - B

Answer- B. Exercise induced calf claudications

Popliteal Artery Entrapment Syndrome

- It is caused by the congenital abnormality in the relationship between popliteal artery and medial head of gastrocnemius and associated muscle.

Clinical Presentation:

- Young male or female without atherosclerosis
- Exercise induced calf claudication

685. Ideal age for PMSTR is

a) < 1 year

b) 1 - 3 years

c) 3 - 6 years

d) 6 - 9 years

Correct Answer - B

Answer- B. 1 - 3 years

PMSTR: Posteromedial Soft tissue release:

- It is the soft tissue surgical treatment for congenital talipes Equinovarus.
- The results of early operation for treatment of congenital talipes equino varus, in particular neonatal surgery have not been shown to be better than those of late surgery
- Delaying surgery until the child is near walking age has the advantage of operating of larger foot (making surgery easier)
- Posteromedial soft tissue release (PMSTR), (Turcos) is best done at young age (1-3 years)

686. Ponsetti technique failure in children should be managed with

a) Posteromedial soft tissue release

b) Anterolateral soft tissue release

c) Triple arthrodesis

d) Lateral closing wedge osteotomy of calcaneum

Correct Answer - A

Answer- A. Posteromedial soft tissue release

- If treatment by manipulation and retention fails, operation should usually be undertaken before 9 months of age, mostly at 4- 6 months.
- The idea behind early operation is to set the tarsal bones in normal relationship to one another and to remove deforming forces, thus allowing the bones to develop in their normal shape from an early age.
- The procedure used is soft tissue release, i.e. postero-medial release (PMR).

687. Which of the following is/are X ray feature/s of perthes disease?

a) Increased medial joint space

b) Metaphyseal cysts and rarefaction

c) Lateral extrusion of femur head

d) All the above

Correct Answer - D

Answer- D. All the above

Radiological findings in perthe's disease are :-

1. Increased medial joint space
2. Widening of femoral neck
3. Lateral extrusion (lateral subluxation)
4. Metaphyseal cysts and rarefaction of metaphysis
5. Horizontal physis with speckled calcification lateral to it
6. Fragmentation of femoral head with increased density (irregular densities in the epiphysis)

688. Bakers cyst is a type of

a) Pulsion diverticulum of knee joint

b) Retention cyst

c) Bursistis

d) Benign tumor

Correct Answer - A

Answer- A. Pulsion diverticulum of knee joint

- It is the pulsion diverticulum of the knee joint, caused by chronic disease in the joint.
- Bulging of the posterior capsule and synovial herniation may produce a swelling in the popliteal fossa.

689. Tenderness in anatomical snuff box is characteristic of which carpal bone fracture?

a) Scaphoid

b) Capitate

c) Lunate

d) Triquetrum

Correct Answer - A

Answer- A. Scaphoid

Clinical features of scaphoid fracture

- History of fall on outstretched hand
- Pain and fullness in the wrist, especially on radial side in the region of anatomical snuffbox.
- Movements at wrist are painful.
- Tenderness in the anatomical snuffbox
- A force transmitted along the axis of second metacarpal or pressure along the thumb produces pain in the region of scaphoid.

690. Which of the following is not true about osteoid osteoma

- a) Most common true benign tumor of bone
- b) Occurs between 10 - 30 years of age
- c) Lesion appears ill defined on x-ray with permeative margins
- d) Bone scan shows increased uptake in the lesion

Correct Answer - C

Answer-C. Lesion appears ill defined on x-ray with permeative margins

- Osteoid osteoma is the most common true benign tumor of the bone
- The tumor occurs between 10-30 years of age and is more common in males.
- The diaphysis of long bones is involved, most common bone involved is the tibia followed by femur
- On X-ray, there is a small radiolucent area (nidus) surrounded by dense sclerosis.
- X-ray, in some cases, show local sclerotic thickening of the shaft that may obscure the small central nidus within the area of rarefaction.

691. Fasciotomy- all of the following are cut except

a) Skin

b) Superficial fascia

c) Deep fascia

d) Muscles

Correct Answer - D

Answer- D. Muscles

- Fasciotomy or fasciectomy is a surgical procedure where the fascia is cut to relieve tension or pressure commonly to treat the resulting loss of circulation to an area of tissue or muscle.
- Fasciotomy is a limb-saving procedure when used to treat acute compartment syndrome

692. No man's land in palm corresponds to -

a) Zone I

b) Zone II

c) Zone III

d) Zone IV

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

693. In hand injury first structure to be repaired should be?

a) Skin

b) Nerve

c) Muscle

d) Bone

Correct Answer - D

Ans is 'd' i.e. Bone

CSDT 13/e p1149 writes -"Bone must first be stabilized with K wires or metal plates before vascular repairs are performed. Arterial and venous repairs are done with microscopic magnification, and the ischemic tissue is reperfused."

Sabiston 18/e p1995 writes-"Although control of active hemorrhage is always a top priority, reconstruction of injured vessels must be carefully orchestrated with the management of bone and soft tissue injuries. It is preferable to achieve bone alignment before vascular reconstruction because orthopedic manipulation and reconstruction takes time and may disrupt the vascular repair. Thus, if the limb is not grossly ischemic, reduction and fixation of fractures is performed first. If the limb is ischemic, a temporary intraluminal shunt is inserted to maintain distal perfusion during the orthopedic procedure."

694. Deformity with decreased carrying angle is-

a) Cubitus varus

b) Mannus varus

c) Cubitus valgus

d) Mannus valgus

Correct Answer - A

Answer- A. Cubitus varus

Carrying angle:

- Angle between long axis of arm and forearm is called carrying angle.
- It is measured with the elbow in full extension.
- Cubitus Varus develops with is reduced carrying angle and cubitus valgus is increased carrying angle.
- Varus - distal part towards midline and valgus is distal part away from midline.

695. What suggests segmental demyelination on NCV

- a) Decreased CAMP amplitudes
- b) Uniform slowing of nerve conduction
- c) Decreased area under CAMP curve
- d) No evidence of distal conduction

Correct Answer - A

Answer- A. Decreased CAMP amplitudes

- Segmental Demyelination : Because there is variable slowing or different nerve fibers within the nerve, conduction velocity will be slowed and distal latencies will be prolonged in segmentally demyelinating injuries.
- CMAP amplitudes may be decreased because of temporal dispersion, not because of axonal damage. Therefore, the CMAP may be longer in duration. However, the area under the CMAP will be normal.

696. Crutch palsy is injury to which nerve?

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Musculocutaneous nerve

Correct Answer - A

Answer-A. Radial nerve

- Very high lesions of radial nerve may be caused by trauma or operations around the shoulder.
- This is seen in drink and drug addicts who fall into a stupor with the arm dangling over the back of a chair ('saturday night palsy') or in thin elderly patients using crutches ('crutch palsy').

697. Autonomous zone of sensory supply by radial nerve is

a) 1st dorsal web space

b) Tip of index finger

c) Tip of thumb

d) Tip of little finger

Correct Answer - A

Answer- A. 1st dorsal web space

- Autonomous Zone of peripheral nerves:
- Radial nerve: 1st dorsal web space of hand (Anatomical snuff box)
- Median nerve: Distal phalanx (tip) of index finger (2nd finger)
- Ulnar nerve: Distal phalanx (tip) of little finger (5th finger).

698. Compartment syndrome is commonly seen in

a) Fracture of proximal tibia

b) Fracture shaft humerus

c) Fracture of femur shaft

d) Fracture distal end radius

Correct Answer - A

Answer-A. Fracture of proximal tibia

- High-risk injuries for development of compartment syndrome are fractures of the elbow, forearm bones, proximal third of the tibia, and also multiple fractures of the hand or foot, crush injuries and circumferential burns.

699. Most specific antibody seen in RA

a) Anti CCP

b) Rheumatoid factor

c) ANA

d) Anti dsDNA

Correct Answer - A

Answer- A. Anti CCP

- The presence of serum anti-CCP antibodies has about the same sensitivity as serum RF for the diagnosis of RA.
- However, its diagnostic specificity approaches 95% (most specific for RA), so a positive test for anti-CCP antibodies in the setting of an early inflammatory arthritis is useful for distinguishing RA from other forms of arthritis.

700. Unna boot is used for treatment of

a) Diabetic foot ulcer

b) Varicose ulcers

c) Ankle instability

d) Calcaneum fracture

Correct Answer - B

Answer- B. Varicose ulcers

- It is named for the dermatologist Paul Gerson Unna.
- This boot can be used to treat uninfected nonnecrotic leg and foot ulcers that result from such conditions as venous insufficiency (varicose ulcers) and stasis dermatitis.

701. A patient presents with normal babinsky reflex with anide areflexia with presence of saddle anesthesia and difficulty in micturition. What is the most probable diagnosis?

a) Cauda equine syndrome

b) Brown Sequard syndrome

c) Leheriche syndrome

d) Williams syndrome

Correct Answer - A

Answer- A. Cauda equine syndrome

- Caudaequina syndrome (CES) signffies an injury of multiple lumbosacral nerve roots within the spinal canal distal to the termination of the spinal cord at LI-2.
- Low back pain, weakness and areflexia ofankle, saddle anesthesia, or loss of bladder function may occur.
- It is a lower motor neuron ty?e of lesion, so sign of signs of upper motor neuron involvement like positive babinsky spasticity etc. are absent.

702. Paprika sign during debridement is crucial in management which of the following condition?

a) Chronic osteomyelitis

b) Osteosarcoma

c) Osteoid osteoma

d) Brodies abscess

Correct Answer - A

Answer- A. Chronic osteomyelitis

- Sequestrectomy and curettage require more time to perform and result in considerably more blood loss than an inexperienced surgeon would anticipate.
- Exposed infected area of bone, incision given and drill is used to remove all sequestra, purulent material, and scarred and necrotic tissue. If sclerotic bone seals off a cavity within the medullary canal, open it into the canal in both directions to allow blood vessels to grow into the cavity. Use a high-speed burr to debride necrotic or ischemic bone until the "paprika sign" (active punctate bleeding bone) is achieved, indicating healthy tissue.

703. High crural index is seen in

a) Jumping athletes

b) Gymnasts

c) Weight lifters

d) Long - distance runners

Correct Answer - A

Answer- A. Jumping athletes

- Crural index the ratio of lower leg length to thigh length. A high crural index allows application of force against the ground for a greater period of time than a lower crural index. Jumping athletes (such as in basketball) and sprint swimmers tend to have above-average crural indices.

704. A 32-year-old primigravida at 39 weeks of gestational age has a blood pressure reading of 150/100 mm Hg obtained during a routine visit. Her baseline blood pressure during the pregnancy was 120/70 mmHg. The patient denies any headache, visual changes, nausea, vomiting, or abdominal pain. Her repeat BP is 160/90 mmHg, and urinalysis is negative for protein. Which of the following is the most likely diagnosis?

a) Preeclampsia

b) Chronic hypertension with superimposed preeclampsia

c) Eclampsia

d) Gestational hypertension

Correct Answer - D

Ans. is 'd' i.e., Gestational hypertension

- Hypertension in pregnancy is defined as blood pressure of 140/90 mmHg or greater on at least two separate occasions that are 6 h or more apart.
- The presence of edema is no longer used as a diagnostic criterion because it is so prevalent in normal pregnant women.
- A rise in systolic blood pressure of 30 mmHg and a rise in diastolic blood pressure of 15 mmHg are also no longer used.

- In gestational hypertension, maternal blood pressure reaches 140/90 or greater for the first time during pregnancy, and proteinuria is not present.
- In preeclampsia, blood pressure increases to 140/90 after 20 weeks of gestation and proteinuria is present (300 mg in 24 h or 1+ protein or greater on dipstick). Eclampsia is present when women with preeclampsia develop seizures.

705. By which day after fertilization, is placental circulation established :

a) 11th day

b) 13th day

c) 15th day

d) 17th day

Correct Answer - D

17th day

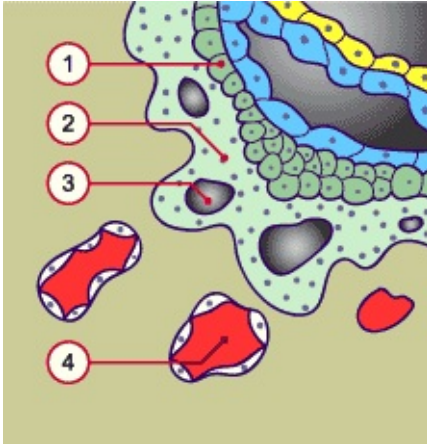
Development of the placental villi:

While the embryo is nourished in the first weeks through simple diffusion, later, due to its rapid growth, it needs a more powerful gas and nutrient exchange system.

This is made possible by the development of the utero-placental circulation system in which the circulation systems of the mother and of the embryo get closer together, thus allowing an exchange of gases and metabolites via diffusion.

Through the lytic activity of the syncytiotrophoblast the maternal capillaries are eroded and anastomose with the trophoblast lacunae, forming the sinusoids.

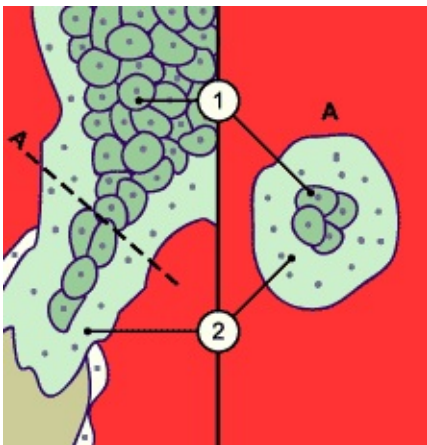
At the end of the pregnancy the lacunae communicate with each other and form a single, connected system that is delimited by the syncytiotrophoblast and is termed the **intervillous space**.



1. Cytotrophoblast
2. Syncytiotrophoblast
3. Spaces between syncytiotrophoblast (Lacunae)
4. Maternal vessel

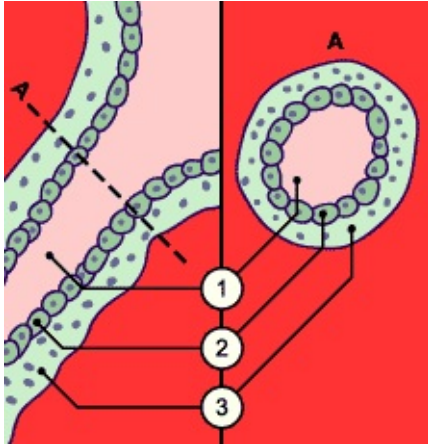
Maternal vessel, eroded by the ST, which form the maternal sinusoids through communication with the lacunae.

Between the 11th and 13th day cytotrophoblast cells penetrate into the cords of the syncytiotrophoblast creating the primary trophoblast villi



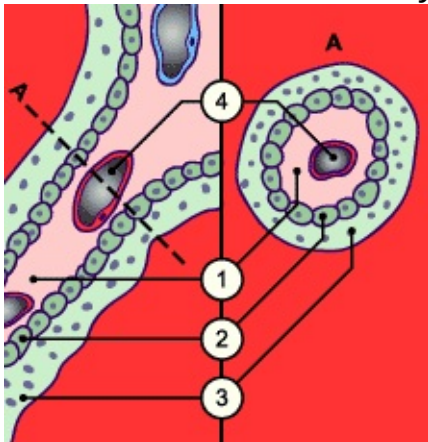
1. Cytotrophoblast
2. Syncytiotrophoblast

After the 16th day the extra-embryonic mesoblast also grows into this primary trophoblast villus, which is now called a secondary villus and expands into the lacunae that are filled with maternal blood. As was already mentioned, the ST forms the outermost layer of every villus.



1. Extra-embryonic mesoblast
- 2 Cytotrophoblast
- 3 Syncytiotrophoblast

At the end of the 3rd week the villus mesoblast differentiates into connective tissue and blood vessels. They connect up with the embryonic blood vessels. Villi that contain differentiated blood vessels are called tertiary villi



- 1 Extra-embryonic mesoblast
- 2 Cytotrophoblast
- 3 Syncytiotrophoblast
- 4 Fetal capillaries

706. A mother brought her 7 year old daughter complaining of breast development. Thelarche occurs normally at?

a) 7-11 years

b) 8-13 years

c) 11-13 years

d) 12-14 years

Correct Answer - B

- Breast development, termed thelarche, begins in most girls between the ages of 8 and 13 years. Thelarche prior to age 8 or lack of breast development by age 13 is considered abnormal and should be investigated.
- Pubertal changes before the age of 8 years in girls and 9 years in boys are considered as precocious.
- Although the *most common cause of precocious puberty in girls is idiopathic*, it is essential to ensure close long-term follow-up of these patients to ascertain that there is no serious underlying pathology, such as tumors of the ovary or CNS.
- Only 1-2% patients with precocious puberty have an estrogen-producing ovarian tumor as the causative factor.

Ref: Hoffman B.L., Schorge J.O., Schaffer J.I., Halvorson L.M., Bradshaw K.D., Cunningham F.G., Calver L.E. (2012). Chapter 14. Pediatric Gynecology. In B.L. Hoffman, J.O. Schorge, J.I. Schaffer, L.M. Halvorson, K.D. Bradshaw, F.G. Cunningham, L.E. Calver (Eds), Williams Gynecology, 2e.

707. Blighted ovum is :

a) Synaptic knobs

b) Avascular villi

c) Intervillous hemorrhage

d) None

Correct Answer - B

Ans. is b i.e. Avascular villi

According to the clinical and echographic findings, it is possible to separate early pregnancy losses into two groups :

alighted ova : Those early pregnancy losses in which foetal development is not observed with ultrasound (so **that** only a gestational sac is present with or without a yolk sac) and fetal tissue is absent on histologic examination of the products of conception.

- *Early Fetal demise* Those early pregnancy losses in which fetal development is clearly observed by ultrasound and fetal tissue is found on the histologic examination.

The difference between these two types of abortion is of fundamental importance. The lack of development of fetal structures defines a subset of abortions of genetic origin.

In contrast, the early interruption of fetal life is a complex phenomenon with multiple etiologies. Therefore, the patients with blighted ova do not require extensive work up, whereas patients who have aborted cytogenetically normal fetuses need an extensive search for non genetic factors responsible for the pregnancy loss.

708. A girl with normal stature and minimal or absent pubertal development is seen in

a) Kallman syndrome

b) Turner syndrome

c) Testicular feminization syndrome

d) Pure gonadal dysgenesis

Correct Answer - A

Ans. a. Kallman syndrome

'Kallmann syndrome is a genetic condition where the primary symptom is a failure to start puberty or a failure to fully complete it. It occurs in both males and females and has the additional symptoms of hypogonadism and almost invariably infertility. Kallmann syndrome also features the additional symptom of an altered sense of smell; either totally absent (anosmia) or highly reduced (hyposmia)- Nelson

709. End point of D/C is ?

a) After 2 strokes

b) Presence of fresh bleeding

c) Uterine cry

d) All of the above

Correct Answer - C

Ans. is 'c' i.e., Uterine cry

- The curette should be inserted gently to the uterine fundus and withdrawn slightly. To decrease the risk of perforation, do not force the curette.
- The end point of this scrubbing should be the detection of a scratching/grating sensation or sound (the "uterine cry"), which represents a sharp curette running over myometrium. Too vigorous a pursuit of this end point may lead to formation of synechiae (Asherman's syndrome).

710. Cause of unilateral dysmenorrhea :

- a) One horn of malformed uterus
- b) Endometriosis with unilateral distribution
- c) Small fibroid at the utero tubal junction
- d) All of the above

Correct Answer - D
All of the above

711. A 20 year old woman gives a history of sharp pain in the lower abdomen for 2 - 3 days every month approximately 2 weeks before the menses. The most probable etiology for her pain is :

a) Endometriosis

b) Dysmenorrhea

c) Pelvic tuberculosis

d) Mittelschmerz

Correct Answer - D
Mittelschmerz

- A female giving history of sharp pain in lower abdomen, every month, 2 weeks before the menstruation suggests mittelschmerz as the diagnosis.
- Mittelschmerz is synonymous to painful ovulation. Pain is associated with rupture of ovarian follicle at the time of ovulation
Characteristics of : Mittelschmerz or Ovular pain
- It appears in the mid-menstrual period.^o
- Pain is usually situated in the hypogastrium or to one iliac fossa.^o
- Pain is usually located on one side and does not change side according to which ovary is ovulating.^o
- Nausea and vomiting is conspicuously absent.^o
- It rarely lasts for more than 12 hours.^o
- It may be associated with slight vaginal bleeding or mucoid discharge.^o
- The probable factors - Increased tension of graffian follicle just prior

are :

to rupture.^o

- Peritoneal irritation by follicular fluid following ovulation.^o

- Contraction of tubes and uterus.^o

Management :

- Assurance and analgesics
 - In refractory cases cycles are made anovular by giving OCPs
- Also Know : The phenomenon of ovulation bleeding or mucus tinged with blood at the time of ovulation is called as mittel blut^o . This may be associated with ovulation pain, although each may occur independently.

712. According to the 2010 WHO criteria what are the characteristics of normal semen analysis?

a) Volume 2.0 mL, count 20 million, morphology 4% progressive motility 32%

b) Volume 1.5 mL, count 15 million, morphology 4% progressive motility 32%

c) Volume 2.0 mL, count 15 million, morphology 40% progressive motility 32%

d) Volume 1.5 mL. count 20 million, morphology 4% progressive motility 32%

Correct Answer - B

Ans: B. Volume 1.5 mL, count 15 million, morphology 4% progressive motility 32%

(Ref Dutta 6/e p222)

- According to 2010 WHO criteria:
- Characteristics of normal semen analysis:

Semen Characteristics	WHO 1999	WHO 2010
Volume (ml)	Greater or equal to 2 ml	Greater or equal to 1.5 ml
Sperm count	Greater or equal to 20 million/ml	Greater or equal to 15 million/ml
Total sperm count	Greater or equal to 40 million per ejaculate	Greater or equal to 39 million per ejaculate
Total motility	Greater or equal to 50%	Greater or equal to 40%
Progressive		

motility	Greater or equal to 25%	Greater or equal to 32%
Vitality	Greater or equal to 75%	Greater or equal to 58%
Morphology (Normal form)	14%	Greater or equal to 4%
Leukocyte count (10 ⁴ /m1)	<1	<1

713. The fetus (which is partly foreign to the mother) is not rejected by mother due to

:

a) Immunosuppressive effect of placental hormones

b) Absence of HLA molecules in villous trophoblast

c) Production of blocking Antibody

d) All of the above

Correct Answer - D

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

The fetus and the placenta contain paternally determined antigens which can lead to immunological rejection. The placenta has some role in preventing such a rejection:

- Placental hormones (EPF, PAPP-A, STERIODS & HCG) have got some immunosuppressive effect.
- There is production of blocking antibodies by mother in response to TLX (trophoblast lymphocyte cross reactive antigen) which protect the fetus from rejection.
- Absence of HLA molecules in villous trophoblast.

714. The amniotic fluid is in balance by :

a) Excretion by fetal kidneys

b) Maternal hemostasis

c) Fetal intestinal absorption

d) All

Correct Answer - D

Ans. is a, b, c

Amniotic fluid originates from

- In early pregnancy - As an ultrafiltrate of maternal plasma (i.e., *option "b" correct*).
- By beginning of the second trimester - It consists of extracellular **fluid which** diffuses through the fetal skin (i.e., *option "e"*).
- After 20 weeks - Cornification of skin prevents this diffusion and amniotic fluid is composed of fetal urine (*option "a" correct*).

Also know : *The water in the amniotic fluid is completely changed and replaced in every 3 hours.*

Other minor contributors : • Pulmonary fluid

- Fluid filtering through the **placenta**

The fetus swallows 200 - 500 ml liquor every day at term.

(Option "c" correct) i.e. Excretion by fetal kidneys; Maternal hemostasis; Fetal intestinal absorption

715. Which is not a test for ovulation?

a) Fern test

b) Basal body temperature

c) Hysteroscopy

d) LH surge

Correct Answer - C

Hysteroscopy REF: 12th edition of Novak's Gynecology p. 408

METHODS TO DOCUMENT OVULATION:

- Luteinizing Hormone Monitoring Documentation of the LH surge represents a remarkably reproducible method of predicting ovulation. Ovulation occurs 34 to 36 hours after the onset of the LH surge and about 10 to 12 hours after the LH peak
- Basal Body Temperature The least expensive method of confirming ovulation is for the patient to record her temperature each morning on a basal body temperature (BBT) chart.
- Midluteal Serum Progesterone
- Ultrasound Monitoring Ovulation can also be documented by monitoring the development of a dominant follicle by ultrasound until ovulation takes place
- A ferning pattern is seen when periovulatory cervical mucus is spread and dried on a microscope slide.

716. Hypergonadotropic hypogonadism ?

a) Decrease FSH and LH

b) Decrease FSH and increase LH

c) Increase FSH increase LH

d) Increase FSH decrease LH

Correct Answer - C

Ans. is '-c' i.e., Increase FSH increase LH

Hypergonadotropic hypogonadism

- Also K/a primary or peripheral hypogonadism.
- Characterised by hypogonadism due to an impaired response of the gonads to the gonadotropin, FSH and LH.
- In turn a lack of sex steroid production and elevated gonadotropin level(FSH and LH).

Causes : Chromosomal abnormalitis

- Turner's syndrome
- Klinefelter syndrome
- Swyer's syndrome

Enzyme defect

- 17 , hydroxylase
- 17, 20 lyase deficiency

717. All are indications of intra uterine insemination EXCEPT:

a) Viscid cervical mucus

b) Oligozoospermia

c) Tubal blockade

d) Immune factor of sperms

Correct Answer - C

Tubal blockade REF: A handbook of intrauterine insemination by Godwin Ikechukwu Meniru, Peter R. Brinsden, Ian Logan Craft Page 4

Indications of intrauterine insemination:

1. Ejaculatory failure (neurogenic, psychogenic, hypospadias, retrograde ejaculation)
2. Cervical factor (poor cervical mucus, cervical mucus hostility)
3. Male subfertility (oligozoospermia, asthenozoospermia, teratozoospermia)
4. Immunological (male/female antisperm antibodies)
5. Endometriosis
6. Idiopathic
7. Combined factors

718. A lady presented with secondary amenorrhea 6 months after having an abortion. Her FSH levels were measured as 6 mIU/ml what is the most probable diagnosis:

a) Pituitary failure

b) Ovarian failure

c) Fresh pregnancy

d) Uterine synechiae

Correct Answer - D

Since the lady in the question is having secondary amenorrhea following an abortion, uterine synechiae is the most likely cause. Low normal FSH level is consistent with uterine abnormality. (Normal serum FSH value in adult is woman is 5-20 mIU).

Ref: Novak's, 14th Edition, Chapter 27; Speroff, 7th Edition, Chapter 11; Shaw's, 14th Edition, Pages 263, 264; The Subfertility Handbook : A Clinician's Guide By Gab Kovacs, 2nd Edition, Page 117

719. The production rate of the following hormone near term, is the greatest of any known hormone in humans (approximately 1gm/day)-

a) Relaxin

b) Progesterone

c) hCG

d) hPL

Correct Answer - D

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

- Human placenta lactogen (hPL) was named so , because of its potent lactogenic & growth hormone like bioactivity, as well as immunochemical resemblance to human growth hormone.
- It is detected as early as 2nd or 3rd week after fertilization.
- Maternal plasma concentrations are linked to placental mass & they rise steadily till 34-36 weeks of gestation.
- The hPL production rate near term is by far the greatest of any known hormone in humans- approximately 1gm/day.

720. Labour is termed as precipitate if it occurs under:

a) 1 hour

b) 2 hours

c) 1/2 hours

d) 4 hours

Correct Answer - B
2 hours

721. Treatment of carcinoma Cervix stage IIIB include:

a) Wertheim's hysterectomy

b) Schuata's hysterectomy

c) Chemotherapy

d) Concurrent chemoradiation

Correct Answer - D
Ans. d. Concurrent chemoradiation

Treatment Options by Stage

Carcinoma in Situ (Stage 0)

- Conization, such as cold-knife conization, loop electrosurgical excision procedure(LEEP), or laser surgery.
- Hysterectomy for women who cannot or no longer want to have children. This is done only if the tumor cannot be completely removed by conization.
- Internal radiation therapy for women who cannot have surgery.

Stage IA Cervical Cancer

Treatment for stage IA1 may include the following:

- Conization.
- Total hysterectomy with or without bilateral salpingo-oophorectomy.

Treatment for stage IA2 may include the following:

- Modified radical hysterectomy and removal of lymph nodes.
- Radical trachelectomy.
- Internal radiation therapy for women who cannot have surgery.

Stages IB and IIA Cervical Cancer

- Radiation therapy with chemotherapy given at the same time.
- Radical hysterectomy and removal of pelvic lymph nodes with or without radiation therapy to the pelvis, plus chemotherapy.
- Radical trachelectomy.
- Chemotherapy followed by surgery.
- Radiation therapy alone.

Stages IIB, III, and IVA Cervical Cancer

- Radiation therapy with chemotherapy given at the same time.
- Surgery to remove pelvic lymph nodes followed by radiation therapy with or without chemotherapy.
- Internal radiation therapy.
- A clinical trial of chemotherapy to shrink the tumor followed by surgery.
- A clinical trial of chemotherapy and radiation therapy given at the same time, followed by chemotherapy.

Stage IVB Cervical Cancer

- Radiation therapy as palliative therapy to relieve symptoms caused by the cancer and improve quality of life.

- Chemotherapy and targeted therapy.
- Chemotherapy as palliative therapy to relieve symptoms caused by the cancer and improve quality of life.
- Clinical trials of new anticancer drugs or drug combinations.

Treatment Options for Recurrent Cervical Cancer

- Immunotherapy.
- Radiation therapy and chemotherapy.
- Chemotherapy and targeted therapy.
- Chemotherapy as palliative therapy to relieve symptoms caused by the cancer and improve quality of life.
- Pelvic exenteration.
- Clinical trials of new anticancer drugs or drug combinations.

Cervical Cancer During Pregnancy

Carcinoma in Situ (Stage 0) During Pregnancy

Usually, no treatment is needed for carcinoma in situ (stage 0) during pregnancy. A colposcopy may be done to check for invasive cancer.

Stage I Cervical Cancer During Pregnancy

Pregnant women with slow-growing stage I cervical cancer may be able to delay treatment until the second trimester of pregnancy or after delivery.

Pregnant women with fast-growing stage I cervical cancer may need immediate treatment. Treatment may include:

- Conization.
- Radical trachelectomy.

Women should be tested to find out if the cancer has spread to the lymph nodes. If cancer has spread to the lymph nodes, immediate treatment may be needed.

Stage II, III, and IV Cervical Cancer During Pregnancy

- Chemotherapy to shrink the tumor in the second or third trimester of pregnancy. Surgery or radiation therapy may be done after delivery.
- Radiation therapy plus chemotherapy. Talk with your doctor about the effects of radiation on the fetus. It may be necessary to end the pregnancy before treatment begins.

722. In Fothergill's operation the following are undertaken EXCEPT :

a) Amputation of cervix

b) Anterior colporrhaphy

c) Colpoperineorrhaphy

d) Plication of round ligament

Correct Answer - D
Plication of round ligament

723. What are the findings in U/S, which suggests incompetent os :

a) Cervical length

b) Funneling of amniotic sac

c) Internal os

d) All

Correct Answer - D

Ans. is a, b and c i.e. Cervical length; Internal os; and Funneling of amniotic sac

- Closed cervix (competent os) on USG appears like the letter T.
- Cervical incompetence :
Cervical incompetence is characterised by painless° cervical *dilatation in the second° or early third trimester°* with ballooning of the amniotic sac into the vagina°, followed by rupture of membranes and expulsion of a usually live fetus. It usually occurs in 16 - 24 weeks.
Diagnosis :
- History : The typical history of painless rupture of membranes° followed by the quick delivery of a live fetus in midtrimester is very suggestive.°
- Non pregnant state : Internal os allows the passage of a No. 8 Hegar's cervical dilator or Foley's catheter filled with 1 ml water without resistance.°
- Premenstrual Hystercervicography will show the typical funneling of the internal os°.
- **In Pregnancy :**
 - Transvaginal ultrasound is the ideal method to detect early incompetence.

- Incompetent os on USG shows the following features: Before opening, the cervix shortens and then funneling can take place, which on USG looks like the letter Y (indicating incompetent os) that can progress to look like the letter V (cervix is just about to open).
- The normal cervical length at 14 weeks is 35 - 40 mm and the internal os diameter is less than 20 mm. A cervical length less than 30 mm and an internal os diameter more than 20 mm is suggestive of cervical incompetence.
- Other findings on ultrasound are funneling of the os.° Serial scans may be necessary.

724. A lady with abdominal mass was investigated. On surgery, she was found to have bilateral ovarian masses with smooth surface. On microscopy they revealed mucin-secreting cells with signet ring shapes. Most probable diagnosis is:

a) Krukenberg tumor

b) Dysgerminoma

c) Mucinous adenocarcinoma of the ovaries

d) Dermoid cyst

Correct Answer - A

Ans: A. Krukenberg tumor

(Ref Robbins 9/e p1034: 8/e p1050)

Krukenberg tumor:

- Classic metastatic gastrointestinal carcinoma involving ovaries.

Features:

- Characterized by bilateral metastases composed of mucin-producing, signet-ring cancer cells, most often of gastric origin.

725. Treatment of choice in a postmenopausal lady with atypical endometrial hyperplasia is ;

a) Estrogens

b) Hysterectomy

c) Progestogens

d) Radiotherapy

Correct Answer - B

Ans: B. Hysterectomy

Variable	Type I:	
	Endometrioid	Type II: Serous
Epidemiology	75% of endometrial cancers	25% of endometrial cancers
Etiology	Unopposed estrogen stimulation (e.g. tamoxifen use, exogenous estrogen-only therapy).	Unrelated to estrogen; the p53 mutation is present in 90% of cases.
Precursor lesion	Hyperplasia and atypical hyperplasia.	None
Mean age at diagnosis	55 years	67 years
Prognosis	Favorable	Poor



726. Air in the urine bag after laparoscopic hysterectomy is due to:

a) Expected & a normal finding

b) Bowel perforation

c) Bladder injury

d) Blocked Foley catheter

Correct Answer - C

Ans. is 'c' i.e., Bladder injury

- When injured, the bladder is usually penetrated by, the Veress needle or trocar .
- Trocar injuries are typically to the bladder dome and have an entry and exit wound.
- The position of the bladder should be assessed on initial examination with the laparoscope. All secondary trocars should be placed under direct visualization.
- During the operation, the diagnosis of bladder injury is suggested by the presence of gas filling up the Foley bag or visibly bloody urine in the Foley bag.
- Other signs of injury are urinary/fluid drainage from a secondary trocar site incision, or fluid pooling in the abdomen/pelvis.
- If a bladder injury is suspected, the bladder should be filled with methylene blue-colored saline. The forcing out of fluid/dye indicates a bladder injury.

**727. All of the following are advantages of laparoscope assisted vaginal hysterectomy (LAVH) over abdominal hysterectomy except:
March 2011**

a) Less peritoneal adhesions postoperatively

b) Short hospital stay

c) Less postoperative pain

d) Scope of wide exploration of the abdominal and pelvic organs

Correct Answer - D

Ans. D: Scope of wide exploration of the abdominal and pelvic organs

Advantages of laparoscopy over laparotomy includes **1)** reduced pain and quick recovery, **2)** short hospital stay and **3)** less peritoneal adhesions postoperatively

Vaginal hysterectomy

- First clamp includes uteroscaral & Macenrodt's ligament
- Second clamp includes uterine artery
- Third clamp includes cornual structures
- In abdominal hysterectomy it will be in the reverse order of the above & hence round ligament & cornual structures are clamped first.

728. The incision in which rectus abdominis muscle is cut transversely is :

a) Pfannenstiel

b) Maylard

c) Kerr

d) All of the above

Correct Answer - B

Ans. is 'b' i.e, Maylard

- Maylard Incision is a surgical incision in which a transverse cut is made on rectus abdominis muscle to allow wider access to the pelvic cavity. It is also called Mackenrodt incision.
- For gynaecological surgery, the skin incision is made 5-8 cm above the pubic symphysis.
- The rectus fascia and rectus muscles are transected. Care must be exercised at the lateral margin of the rectus muscle to ensure the integrity of the inferior epigastric artery and vein. The muscle is totally transected.

729. 22 years old female unable to conceive since 12 months, known case of pelvic inflammatory disease, normal menses, normal vaginal and cervical examination, next line investigation :

a) HSG

b) AMH

c) Hysteroscopy

d) CA 125

Correct Answer - A

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

Pelvic Inflammatory Disease

- It is the infection and inflammation of the upper genital tracts, typically involving fallopian tubes, ovaries, and surrounding structures.
- It can cause tubal damage & can lead to infertility (tubal factor). Hence , in this patient, tubes need to evaluated.
- Hysterosalpingography (HSG) : cavity of the uterus and fallopian tube patency can be checked: As it does not require anesthesia, it is the first-line investigation for checking tubal patency.

730. Incidence of infertility is in reproductive age couples ?

a) 0-5 %

b) 5-10%

c) 10-20 %

d) 25-30%

Correct Answer - C

Ans: C. 10-20 %

Infertility is defined as the failure to conceive after one year of regular unprotected intercourse.

Incidence

- 10-20% of reproductive ages couples.

731. Which of the following is the largest and most important muscle in the pelvic floor?

a) Coccygeus

b) External anal sphincter

c) Levator ani

d) Obturator internus

Correct Answer - C

Ans. C. Levator ani

- The pelvic floor is formed by the large levator ani (with parts including the pubococcygeus, puborectalis, and iliococcygeus) and the much smaller coccygeus.
- Internal rotation of fetal head occurs when the fetal head touches the pelvic floor (levator ani muscle).
- The movement involves the gradual turning of the occiput from its original position anteriorly toward the symphysis pubis.
- The main purpose of internal rotation is to place the occiput behind the pubic symphysis.

Theories which explain the anterior rotation of the occiput:

1. Hart's rule: The part of the fetal skull which presses on the levator ani muscle is pushed anteriorly with each recoil.
2. Pelvic shape: Pelvic outlet is greater in AP diameter. Hence, the head tries to accommodate in the maximum available diameter.

Ref: Hoffman B.L., Schorge J.O., Schaffer J.I., Halvorson L.M., Bradshaw K.D., Cunningham F.G., Calver L.E. (2012). Chapter 38. Anatomy. In B.L. Hoffman, J.O. Schorge, J.I. Schaffer, L.M. Halvorson, K.D. Bradshaw, F.G. Cunningham, L.E. Calver (Eds), Williams Gynecology, 2e.

732. Prophylactic forceps in a cardiac diseased patient is used, when head is at station :

a) 0

b) +1

c) +2

d) -1

Correct Answer - C
+2

733. At what level of b-HCG is it that normal pregnancy can be earliest detected by TVS:

a) 500 IU/m1

b) 1000 IU/m1

c) 1500 IU/m1

d) 2000 IU/m1

Correct Answer - B

Ans. is b i.e. 1000 IU/m1

PhCG level (MiU/mi)	Structure visible	TVS/TAS
• 1000 - 1200	Gestational sac	TVS
• 6000	Gestational Sac	TAS
• 7000	Yolk sac	TAS
• 11000	Embryo	TAS

734. The most important risk factor for development of post partum uterine infection/sepsis is:

a) Anemia

b) Route of delivery

c) Diabetes

d) Obesity

Correct Answer - B

Ans. is 'b' i.e., Route of delivery

- The route of delivery is the single most significant risk factor for the development of uterine infection.
- Compared with cesarean delivery, metritis following vaginal delivery is relatively uncommon.
- Most female pelvic infections are caused by bacteria indigenous to the female genital tract.

735. Which of these is diagnostic of menopause?

a) Serum FSH > 40

b) Serum LH > 20

c) Serum FSH < 40

d) Serum estradiol < 30

Correct Answer - A

Ans: A. Serum FSH > 40

(Ref. Shaw's. 16/e p66. 15/e p62).

- Serum FSH > 40 IU/L is diagnostic of menopause.

Criteria for Menopause

- **Estrogen (E2): 10-20 pg/ml° E2/E1 < 1°**
- **Estrone (E1): 30-70 pg/ml°** • Urine FSH > 40 IU/L°

Laboratory diagnosis:

- **FSH & estrogen level** - Assess ovarian failure.
- Especially in premature ovarian failure case or women seeking treatment for infertility.

FSH levels:

- Greater FSH level (>40 m IU/ml).
- Documents ovarian failure associated with menopause.

Estrogen level:

- Normal/elevated - Depending on stage of menopausal transition.
- After menopause extremely low estrogen level.
- Evaluated to assess women's response to hormone replacement therapy.

736. Maturation index in mid-secretory phase of menstrual cycle is ?

a) 0/95/5

b) 80/20/0

c) 0/70/30

d) 0/95/5

Correct Answer - C

Ans. is 'c' i.e., 0/70/30

- Maturation index (MI) is the relative percentage of parabasal, intermediate and superficial cells per 100 cells counted.
- MI is expressed in 3 numbers—the left one parabasal percentage, intermediate in the center and on the right, the percentage of superficial cells.

At birth 0/95/5

Childhood 80/20/0

Preovulatory 0/40/60

Mid-secretory 0/70/30

Pregnancy 0/95/5

Postpartum 100/0/0

Postmenopause 0/100/0 or 100/0/0

737. MC cause of anovulation is?

a) PCOS

b) Hyperprolactinemia

c) Premature ovarian failure

d) Low ovarian reserves

Correct Answer - A

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

Anovulation and ovulatory dysfunction can be caused by a number of factors.

The most common cause of ovulatory dysfunction is polycystic ovarian syndrome, or PCOS.

Other potential causes of irregular or absent ovulation:

- Obesity
- Underweight
- Extreme exercise
- Hyperprolactinemia
- Premature ovarian failure
- Perimenopause, or low ovarian reserves
- Thyroid dysfunction
- Extremely high levels of stress

738. A 20-year old average weight female complains of oligomenorrhea along with facial hair. Preliminary investigations reveal raised free testosterone levels. USG Pelvis: ovary shows normal morphology. Which of the following could be likely etiology

a) Idiopathic hirsutism

b) PCOD

c) Adrenal hyperplasia

d) Testosterone secreting tumor

Correct Answer - B

Ans. b. PCOD (Ref Jeffcott 6/e p205; Shaw's 14/331-332, 13/e p353-354; Novak's 14/1077, 1082)

739. Suction evacuation can be done up to:

a) 6 weeks

b) 10 weeks

c) 16 weeks

d) 18 weeks

Correct Answer - B
Ans. is b i.e. 10 weeks

740. Recurrent abortion seen in all except:

a) Syphilis

b) TORCH

c) Rh incompatibility

d) Chromosomal abnormality

Correct Answer - B

TORCH

- Recurrent miscarriage, habitual abortion, or recurrent pregnancy loss (RPL) is three or more consecutive pregnancy losses at less than (or equal to) 20 weeks of gestation or with a fetal weight of <500 grams.
- It affects approximately 1% to 2% of women

741. The commonest chromosomal abnormality in early spontaneous abortions is :

a) Monosomy

b) Autosomal trisomy

c) Triploidy

d) Tetraploidy

Correct Answer - B
Autosomal trisomy

742. A 25-year-old female presented with history of recurrent abortions. The most relevant investigation to identify the cause is:

a) Bleeding time

b) Rothrombin time

c) Dilute russel viper venom test

d) Clot solubility test

Correct Answer - C

Ans. c. Dilute russet viper venom test

Recurrent abortions is one of the manifestations of antiphospholipid antibody syndrome. The most relevant investigation to identify antiphospholipid antibody syndrome is Dilute russet viper venom test.

Lupus Anticoagulant

- Lupus anticoagulants are acquired inhibitors directed against phospholipid binding proteins and are a common cause of APTT prolongation.^Q
- Dilute Russel viper venom test is one of the tests to detect lupus anticoagulant.^Q

In-vivo

- Lupus anticoagulant don't interfere with coagulation factor complex formation on the platelet surface^Q
- Not usually associated with bleeding tendency^Q
- Frequently associated with thrombosis^Q

In-vitro

- This prolongation results in paradoxical prolongation of phospholipid based clotting assays such as PTT, kaolin, clotting time and Dilute Russel viper venom antibody (dRVV testing)^Q

743. True regarding PPH

a) Type B lynch suture used

b) With new advances both atonic and traumatic PPH can be reduced

c) More common in multipara and Associated with polyhydramnios both

d) All or the above

Correct Answer - D

Ans. is a, b and c i.e. Type B lynch suture used; With new advances both atonic and traumatic PPH can be reduced; More common in multipara; and Associated with polyhydramnios

- PPH is more common in multipara due to lax abdomen and associated factors like adherent placenta and anemia .
- Overdistension of uterus as in multiple pregnancy, hydramnios and large baby also lead to PPH .
- Incidence of atonic and traumatic PPH can be reduced with new advances or rather by intelligent anticipation, skilled supervision, prompt detection and effective institution of therapy.
- B lynch suture are used for management of PPH .
- Mifepristone is not used in the management of PPH .

744. In a patient with heart disease, which of the following should not be used to control PPH :

a) Methyergometrine

b) Oxytocin

c) Misoprostol

d) Hysterectomy

Correct Answer - A

Ans. is a i.e. Methyergometrine

Antepartum Management

NYHA Class I and II :

- Pregnancy and delivery are usually uneventful.
- Patient can be managed on ambulatory treatment and need not be hospitalized early.
- Time of hospitalisation in Class I patients is 36 weeks° and Class II patients is 28 weeks°.
- Physical activity is limited to well within the patient's cardiac reserve.
- Adequate rest is prescribed.
- If any surgical procedure like tooth extraction is required, bacterial endocarditis prophylaxis is indicated. **NYHA Class III and IV :**
- They are at very high risk and ideally should become pregnant only after surgical correction.
- If seen in the first trimester, such patients are candidates for MTP.
- If pregnancy is continued, then the women are hospitalized for the remainder of the pregnancy.

Intrapartum Management :

- This is the period of maximum risk as the cardiac output increases. Patients should be allowed to go into spontaneous labour, if required

Patients should be allowed to go into spontaneous labour, if required induction with vaginal PGE₂ may be done (Induction is safe in case of heart disease)

- *There is no place for trial of labour^o in a patient with heart disease and in such cases, elective cesarean section should be done.*
- Vaginal delivery is preferred unless there are obstetric indications for cesarean section.
- *Only heart disease where vaginal delivery is contraindicated : Coarctation of aorta.*
- Patient is laid in semi recumbent position/propped up position and if required oxygen inhalation is given to the patient.
- Pain should be adequately relieved (best done by epidural anaesthesia)
- Meticulous fluid balance (not more than 75ml/hour).
- Cut short the second stage with outlet forceps.
- 40 mg of intravenous furosemide can be given immediately after the baby is born^o. This will divert some of the excess blood volume that is added to the circulation by the contraction of uterus.

Management of Third stage :

- Ergometrine and methergin are contraindicated.^o
- Oxytocin should be used in the third stage by IV infusion to reduce the amount of bleeding. If PPH occurs in a cardiac patient— Oxytocin, and prostaglandins can be used.
- As per WHO & AGOG guidelines OXYTOCIN is the first line DOC for atonic PPH
- Rapid, continuous infusion of dilute IV oxytocin (40-80 U) in 1L NS to be started.
- Antibiotics are given as a prophylactic measure against infective endocarditis.

Management of Puerperium

- **Early ambulation (to prevent thrombosis)** and lactation are encouraged.

745. Contraindications for medical method (mifepristone misoprostol) of first trimester MTP?

a) Patient with hemoglobin of 7 gm%

b) Suspected ectopic pregnancy

c) Glaucoma

d) All of the above

Correct Answer - D

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

Contraindications (due to medical reasons) for medical method of abortion:

- Smoking > 35 years
- Hemoglobin < 8 g%
- Ectopic pregnancy/ adnexal mass
- Coagulopathy
- Chronic adrenal failure
- Uncontrolled hypertension (BP>160/100mmHg)
- CVD
- Severe renal, hepatic or respiratory diseases
- Glaucoma
- Uncontrolled seizure
- Allergy or intolerance to mifepristone /misoprostol or other prostaglandins
- Lack of access to 24 hours emergency services

746. Hemoconcentration is seen In?

a) Normal pregnancy

b) Preeclampsia

c) Ectopic pregnancy

d) All of the above

Correct Answer - B

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

- Preeclampsia is a pregnancy specific syndrome of reduced organ perfusion secondary to vasospasm and endothelial activation characterized by BP 140/90 mm Hg after 20 weeks of gestation and proteinuria 300 mg per 24 h after 20th week in a previously normotensive and nonproteinuric patient.

747. Correct statement about establishing the chorionicity in twin pregnancy is:

- a) Same sex rule **out** dichorionicity
- b) Twin peak in dichorionicity
- c) Thick membrane is present in monochorionic
- d) Best detected after 16 weeks

Correct Answer - B

Ans. is b i.e. Twin peak in dichorionicity

Chorionicity is the most important factor that affects the outcome in Twin gestation.

Diagnosed by ultrasound at 6 to 9 weeks of gestation. In dichorionic twins there is a thick septum between the chorionic sacs. It is best identified at the base of the membrane, where a triangular projection is seen. This is known as lambda or twin peak sign.

Presence of lambda or twin peak sign indicates dichorionic placenta"

So it is clear that lambda / Twin peak sign clearly indicates dichorionic placenta & is hence the correct option 'b'.

As far as other options are concerned.

Option a - Same sex rules out dichorionicity, this is incorrect because

Twins of opposite sex are almost always dizygotic dichorionic but same sex does not rule out dichorionicity. Option c - Thick membrane is present in monochorionic twins

This is also incorrect because monochorionic means there is a single chorion whereas dichorionic means there are 2 chorions so obviously dichorionic membrane will be thick.

"Monochorionic pregnancies have a dividing membrane that is so thin, it may not be seen until the second trimester. The

membrane is generally less than 2mm thick & magnification reveals only 2 layers (of amnion)"

Option d – Chorionicity is best detected after 16 weeks –
Again this statement is incorrect because the best time to detect chorionicity by USG is between 6 to 9 weeks.

**748. Most common site of ectopic pregnancy
in fallopian tube:**

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a) Infundibulum

b) Ampulla

c) Isthmus

d) Interstitium

Correct Answer - B

Ans. B: Ampulla

The vast majority of ectopic pregnancies implant in the Fallopian tube.

Pregnancies can grow in the infundibulum (18% of all ectopics), the ampullary section (55%), the isthmus (25%), and the interstitial part of the tube (20%).

Ampullary pregnancy ruptures generally at 8 weeks

Mortality of a tubal pregnancy at the isthmus or within the uterus (interstitial pregnancy) is higher as there is increased vascularity that may result more likely in sudden major internal hemorrhage.

749. Hormone responsible for decidual reaction and Arias stella reaction in ectopic pregnancy is :

a) Oestrogen

b) Progesterone

c) HCG

d) HPL

Correct Answer - B

Ans. is b i.e. Progesterone

- A single progesterone measurement can be used to establish that there is a normally developing pregnancy with high reliability.
- *A value exceeding 25 ng/mL excludes ectopic pregnancy with 92.5% sensitivity.*

Arias stella reaction

- Arias stella reaction is characterized by adenomatous change of the endometrial glands.
 - Cells lose their polarity, have hyperchromatic **nucleus, vacuolated cytoplasm** and occasional mitosis.
 - The reaction is seen in ectopic pregnancy (in 10-15% cases) and indicates blighting of conceptus be it intrauterine or extrauterine. **(therefore it is not specific for ectopic pregnancy)**
 - It occurs under the influence of progesterone.°
- Decidual reaction
- Under the hormonal effect of ectopic pregnancy (i.e. oestrogen, progesterone and chorionic gonadotrophin) the endometrium hypertrophies and is converted to decidua similar to normal uterine pregnancy.

- **The decidua has all the characteristics of intrauterine pregnancy except it does not have chorionic villi.**°
- The decidual reaction occurs under the influence of estrogen, progesterone and HCG.°
So, hormone which is common to both Arias stella reaction and decidual reaction is progesterone which is our answer of choice.

750.

A 55 year old lady presenting to out patient department with postmenopausal bleeding for 3 months has a 1 x 1 cm nodule on the anterior lip of cervix. Which of the following is the most appropriate investigation to be done subsequently in this care?

a) Pap smear

b) Punch biopsy

c) Colposcopy

d) Endocervical curettage

Correct Answer - B

Most appropriate investigation which can be done in the OPD in this patient who has a visible 1 x 1 cm nodule on the anterior lip of cervix is **punch biopsy**.

For non-visible lesions **colposcopy** allows accurate delineation of suspicious areas for tissue biopsy.

Ref: Shaw's Textbook of Gynaecology, 13th Edition, Page 384

751. In colposcopy, following are visualized except :

a) Upper 2/3rd endocervix

b) Lower 1/3rd endocervix

c) Vault of vagina

d) Lateral fornix

Correct Answer - A

Upper 2/3rd endocervix

- Colposcopy is a method to evaluate the changes in the terminal vascular network of the cervix, the transformation zone, Vagina and Fornix.
- In the cervix, upper 2/3rd of endocervix is not visualized by colposcopy (the maximum limit being 5 mm above the canal).
- A colposcope is a binocular microscope producing magnification of 5 – 15 times.°
- Colposcopy is done after application of 3 – 5% acetic acid, to the abnormal area.°
- It can detect cervical dysplasias, metaplasia and carcinoma in situ.°

Indications (**very important**)

:

In case of abnormal pap smear cytology.°

- To locate abnormal areas.°
- To obtain directed biopsies.°
- Conservative therapy under colposcopic guidance.°
- For follow up of patients treated conservatively.°

Some other Indications

:

- In case of unexplained intermenstrual or post coital bleeding.
- History of Inutero Diethylstilbestrol exposure.
- Vulva' or vaginal neoplasia.

For more details on Colposcopy, see Chapter 12 B – CIN and Ca Cervix.

752. Indications for instituting single-agent chemotherapy following evacuation of a hydatidiform mole usually include

a) A rise in hCG titers

b) A plateau of hCG titers for 1 week

c) Return of hCG titer to normal at 6 weeks after evacuation

d) Appearance of liver metastasis

Correct Answer - A

(Mishell, 3/e, pp 455–456.) Single-agent chemotherapy is usually instituted if levels of hCG remain elevated 8 weeks after evacuation of a hydatidiform mole. Approximately 50% of the patients who have persistently high hCG titers will develop malignant sequelae. If hCG titers rise or reach a plateau for 2 to 3 successive weeks following molar evacuation, a single-agent chemotherapy should be instituted, provided that the trophoblastic disease has not metastasized to the liver or brain. The presence of such metastases usually requires initiation of combination chemotherapy.

753. Incidence of choriocarcinoma is seen more after:

a) Ectopic pregnancy

b) Spontaneous abortion

c) Normal delivery

d) Cesarean section

Correct Answer - B

Ans. is 'b' i.e., Spontaneous abortion

Among all the cases of choriocarcinoma:

- 50% develop following a hydatidiform mole
- 25% develop following an abortion
- 20% develop following a full-term pregnancy and 5% develop following an ectopic pregnancy

754. Choriocarcinoma with lung metastasis is stage ?

a) 1

b) 3

c) 2

d) 4

Correct Answer - B

Ans. is 'b i.e., 3 Stage I

Disease confined to uterus

Stage IA: Disease confined to uterus with no risk factors

Stage IB: Disease confined to uterus with one risk factor

Stage IC: Disease confined to uterus with two risk factors

Stage II: Gestational trophoblastic tumor extending outside uterus but limited to genital structures(adnexa, vagina, and broad ligament)

Stage IIA: Gestational trophoblastic tumor extending outside uterus but limited to genital structures without risk factors

Stage IIB: Gestational trophoblastic tumor extending outside uterus but limited to genital structures with one risk factor

Stage IIC: Gestational trophoblastic tumor extending outside uterus but limited to genital structures with two risk factors

Stage III: Gestational trophoblastic disease extending to lungs with or without known genital tract involvement

Stage IV: Gestational trophoblastic tumor extending to lungs with or

IIIA	without genital:tract involvement and with no risk factors
Stage IIIA	Gestational trophoblastic tumor extending to lungs with or without genital tract involvement and with one risk factor
Stage IIIB	Gestational trophoblastic tumors extending to lungs with or without genital tract involvement and with one risk factor
Stage IIIC	Gestational trophoblastic tumors extending to lungs with or without genital tract involvement and with two risk factors
Stage IV:	All other metastatic sites (liver/brain)
Stage IVA:	All other metastatic sites without risk factors
Stage IVB:	All other metastatic sites with one risk factor
Stage IVC:	All other metastatic sites with two risk factors

755. Dose of centchroman is ?

a) 30 mg

b) 60 mg

c) 120 mg

d) 240 mg

Correct Answer - A

Ans. is 'a' i.e., 30 mg

Cetchroman (Saheli)

- Ormeloxifene, research product of Central Drug Research Institute, Lucknow, India.
- It is a potent non - steroidal compound with potent anti - estrogenic and weak estrogenic properties. It is taken orally (30 mg) twice a week for first three months then once a week.
- It works primarily by preventing implantation of fertilized ovum. It does not inhibit ovulation.
- It is avoided in PCOD, with liver and kidney diseases and in tuberculosis. There may be a tendency of oligomenorrhoea.
- The failure rate is 1 - 4/100 woman years of use. Failure rate is less with increased doses. It is devoid of any significant adverse metabolic effect.
- This may also be used as a emergency contraceptive.

756. Appropriate exposure time for topical phototherapy after TMP application

a) 10-20 min

b) 30- 40 min

c) 50-60 min

d) 1-2 hours

Correct Answer - A

Ans. is'a'i.e., 10-20 min

lRef: IADW textbook of dermatology 3'd/e p. 17191

Topical PUVA:

- A lotion containing 0.1-17o 8-MOP is applied on affected area and is exposed to UVA either immediately or after 1-2 hours.
- Alternatively a vanishing cream containing 0.01% TMP is applied 10-20 minutes before exposure.

757. A 25-year-old girl presented with erythematous papules on the face as seen in the figure. The lesions were exacerbated on excessive sweating, sun exposure and emotional disturbance. What is the diagnosis?



a) SLE

b) Acne rosacea

c) Acne vulgaris

d) Photodermatitis

Correct Answer - B

Ans: B. Acne rosacea

(Ref Rooks 8/e p43.1-43.10; Fitzpatrick 7/e p704-708; Roxburgh 18/e pl 72-1 78; Harrison 19/e 18/e p404, 444)

- **Most likely diagnosis = Acne rosacea.**

Acne rosacea:

- Characterized by erythema of central face persisting for months or more.
- Convex areas of nose, cheeks, chin & forehead - Characteristically involved.
- Spares perioral & periorbital areas.

Vascular abnormalities:

- Abnormal vascular reactivity - Exaggerated flushing response to heat, spicy food, alcohol and stress).
- No pharmacological defect found.

758. Which of the following is characteristically associated with dermatitis?

a) Spongiosis

b) Orthokeratosis

c) Hypergranulosis

d) Acanthosis

Correct Answer - A

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

lRef: Venkataram 1'''/e p. 36-381

- Intercellular edema in stratum spinosum is known as spongiosis. It is considered to be the most characteristic histopathological finding of eczema (dermatitis)

759. Kogoj's pustules are seen in?

a) Lichen planus

b) Pemphigus vulgaris

c) Mycosis fungoides

d) Psoriasis vulgaris

Correct Answer - D

Ans. is'd'i.e., Psoriasis vulgaris

[Rel Venkataram |i/e p. 49]

- On histopathological examination of psoriasis lesion there is accumulation of polymorphs in stratum malpighi layer. These clusters are known as Kogoj pustules.

760. Pemphigus vulgaris is caused due to which type of hypersensitivity reaction?

a) I

b) II

c) III

d) IV

Correct Answer - B

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

Ref: IADVL textbook of dermatology 3'd/e p. 10991

- Pemphigus is a type 2 hypersensitivity reaction (antibody mediated), with formation of antibodies to pemphigus antigen present in intercellular substance.

761. A 35 years old male patient presented with extremely itchy eczematous lesions over forehead, 'V' area of neck, ear pinna and dorsum of forehead. Severity of itching increases on going out in the sun. which of the following medicine will help in the treatment?

a) Retinoid

b) Doxycycline

c) Dapsone

d) Hydrochloroquine

Correct Answer - D

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

[Ref: IADW 3'd/e p. 6261

- Presence of eczematous lesions on sun exposed areas & worsening of symptoms on sun exposure indicates towards the diagnosis of photodermatitis.
- Hydroxychloroquine is a useful systemic drug in the treatment of photodermatitis .

762. Painful vaginal ulcer with inguinal lymphadenopathy and school of fish appearance of microorganism or microscopy are characteristic of:

a) Syphilis

b) LGV

c) Granuloma inguinale

d) Chancroid

Correct Answer - D

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

- Chancroid is a bacterial sexually transmitted disease (STD) caused by infection with *Haemophilus ducreyi*.
- It is characterized by painful necrotizing genital ulcers that may be accompanied by inguinal lymphadenopathy. It is a highly contagious but curable disease.
- *H ducreyi*, a small, gram-negative, facultative anaerobic bacillus that is highly infective.
- It is pathogenic only in humans, with no intermediary environmental or animal host.
- *H ducreyi* enters the skin through disrupted mucosa and causes a local inflammatory reaction
- *H ducreyi* is transmitted sexually by direct contact with purulent lesions and by autoinoculation to nonsexual sites, such as the eye and skin.
- The organism has an incubation period of 1 day to 2 weeks, with a median time of 5-7 days.

763. Painful lymphadenopathy is seen in:

a) Donovanosis

b) Syphilis

c) Chancroid

d) All

Correct Answer - C
C i.e. Chancroid

764. Lesion characteristic of secondary syphilis is?

a) Genital Ulcer

b) Condyloma acuminata

c) Dermal tenderness

d) Hutchinson's teeth

Correct Answer - C

Ans. is'c'i.e., Dermal tenderness

(Ref: Harrison 18th/e p. 1382, p. 1040)

- Deep dermal tenderness on pressure (Buschke-Ollendorff sign) is a characteristic feature of secondary syphilis.

765. True about Lucio's phenomenon is?

a) Associated with tuberculoid leprosy

b) Occurs as side effect of treatment of leprosy

c) Ischemic necrosis

d) Also known as type 2 Lepra reaction

Correct Answer - C

Ans. is 'c' i.e., ischemic necrosis

(Ref: IADVL 3'd/e p. 2023,24)

- Lucio's phenomenon is seen in untreated cases of lepromatous leprosy.
- Lucio's phenomenon is seen in lepromatous leprosy (LL).
- It occurs in patients who are untreated.
- Patients develop recurrent crops of large sharply marginated, ulcerative lesions, particularly on lower extremities.
- It is due to heavy parasitism of endothelial cell, endothelial proliferation and thrombus formation which lead to ischemic necrosis.

766. A 36 years old factory worker developed itchy annular scaly plaques in both groins. Application of a corticosteroid ointment led to temporary relief but the plaques continued to extend at the periphery. The most likely diagnosis is:

a) Erythema annulare centrifugam

b) Granuloma annulare

c) Annular lichen planus

d) Tinea cruris

Correct Answer - D
D ie Tinea cruris

767. True about cutaneous carcinoma is?

a) Squamous cell carcinoma occurs in early age

b) SCC & BCC comprise majority of non melanoma

c) Punch biopsy is IOC in SCC

d) Melanoma is the most common skin cancer

Correct Answer - B

Ans. is'b'i.e., SCC & BCC comprise majority of non melanoma

- There are three main types of skin cancer: basal-cell skin cancer (BCC), squamous-cell skin cancer (SCC) and melanoma
- The first two, along with a number of less common skin cancers, are known as nonmelanoma skin cancer (NMSC).
- Basal cell carcinoma most common skin cancer.
- most SCCs appear in people over 50.

768. Enzyme deficient in oculocutaneous albinism type 1 is ?

a) Tyrosinase

b) Pink protein

c) Tyrosinase related protein 1

d) Membrane associated transport protein (MATP)

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

769. Which antibody is least commonly seen in keloid

a) IgG

b) IgM

c) IgE

d) None

Correct Answer - C

Ans. is'c'i.e. IgE

(Ref: Aesth. plast" Sarg. 6:149_152, 19g2]

770. Hypomelanosis of Ito is associated with?

a) Mental retardation

b) Seizures

c) Visual abnormalities

d) All of the above

Correct Answer - D

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

- Hypomelanosis of Ito (Incontinentia pigmenti achromians) is part of a rare genetic neurocutaneous syndrome.
- Associated Seizures
- Mental retardation
- Hearing Abnormalities
- Tooth or mouth problems
- Visual problems
- Orthopedic problems

771. A 65-year old male presented with tense blisters associated with itching on normal looking skin with urticarial plaques as seen in the figure. What is the most likely diagnosis?

a) Bullous pemphigoid

b) Pemphigus vulgaris

c) Dermatitis herpetiformis

d) IgA pemphigus

Correct Answer - A

Ans. a. Bullous pemphigoid

The most likely diagnosis in this 65-year old male with tense blisters on normal looking skin associated with itching and urticarial plaques as seen in the figure are bullous pemphigoid.

772. MC late complication of central venous line:

March 2013 (f)

a) Air embolism

b) Thromboembolism

c) Cardiac arrhythmias

d) Sepsis

Correct Answer - D

Ans. D i.e. Sepsis

Central venous lines (CVLs)

- They are routinely used for monitoring and the administration of total parenteral nutrition (TPN) and medications in almost all critical / intensive care units (CCUs).
- Central venous access is normally obtained by cannulation of the internal jugular, the subclavian, or the femoral veins.
- Central venous access may also be obtained from more distal sites, typically the basilic and brachial veins, using a peripherally inserted central catheter (PICC).
- However, intravascular catheters are often associated with serious complications, such as catheter-related bloodstream infection.

773. Which of the following prevents aspiration?

a) LMA

b) Oropharyngeal airway

c) Nasopharyngeal airway

d) Proseal LMA

Correct Answer - D

Ans. is 'd' i.e., Proseal LMA [Ref: Understanding Paediatric Anaesthesia Td/e p. 141

- A type of definite airway
- Definite airway is an airway that is adequately secured in trachea and it adequately protect the airway from aspiration.
- ProSeal (PLMA), a modification of Classic LMA, has a gastric drainage tube placed lateral to main airway tube which allows the regurgitated gastric contents to bypass the glottis and prevents the pulmonary aspiration.

774. Shifting patient from assisted ventilation to voluntary ventilation which of the following shows failure?

a) O₂ saturation <80%

b) PEEP <5cms

c) RR <35 mins

d) Tidal volume >5 ml/kg

Correct Answer - A

Ans. is 'a' i.e., O₂ saturation < 80%

- O₂ saturation of >90% is one of the criteria for successful weaning from mechanical ventilation.

775. Which of the following inhalational agents, is the induction agent of choice in children?

a) Isoflurane

b) Desflurane

c) Sevoflurane

d) Methoxyflurane

Correct Answer - C

Sevoflurane is considered to be the inhalational induction agent of choice in children, since it has a pleasant, faster, and smooth induction with no significant systemic toxicity. Other drugs which can be used in children are a mixture of oxygen and nitrous oxide or halothane.

Ref: Synopsis of Pediatric Emergency Medicine By Gary Robert Fleisher, 4th Edition, Page 34; Textbook of Anesthesia for Postgraduates By T. K. Agasti, Page 799.

776. Brain dead patient comes under which category in ASA classification?

a) ASA I

b) ASA 3

c) ASA 4

d) ASA 6

Correct Answer - D

Ans. is'd'i.e., ASA 6

(Ref: Millers anesthesia 8th/e p. 1144)

- Brain dead patient is ASA grade-6.

777. ASA grading is anesthesia is done for?

a) Mental status

b) Physical status

c) Respiratory status

d) Socio-economic status

Correct Answer - B

Ans. is'b'i.e., Physical status

[ref: Millers anesthesia p. 1144]

- ASA is the simplest and most widely used system for describing patient's physical status to assess the risk factors before anaesthesia.

778. Which of the following is not a sign of successful stellate ganglion block?

a) Nasal stuffiness

b) Guttman's sign

c) Horner's syndrome

d) Bradycardia

Correct Answer - D

Bradycardia is not an established sign of successful stellate ganglion block.

Ref: Short Textbook of Anesthesia By Ajay Yadav, 2nd Edition, Page 113; Image-Guided Intervention By Matthew A. Mauro, Kieran Murphy, Kenneth Thomson, Christoph L. Zollikofer, 2008, Page 1741; Atlas of Image-Guided Intervention in Regional Anesthesia and Pain Medicine By James P. Rathmell, 2005, Page 115

779. What is not true about preoperative modification of drugs?

- a) Lithium should be stopped 2-3 days before
- b) Low dose aspirin should be stopped 7 days before
- c) TCAs can be continued till the date of operation
- d) Oral anticoagulants are stopped 4 days before

Correct Answer - B

Ans. is 'b' i.e., Low dose aspirin should be stopped 7 days before

[Ref Ajay Yadav 3'd/e p. 461]

- Antiplatelet drugs like clopidogrel and conventional dose of aspirin should be stopped 7 days prior to surgery.
- But low dose aspirin can be continued till the day of surgery.

780. Capnography is used for?

- a) Oxygen saturation of blood
- b) Amount of CO₂ transported in blood
- c) Diagnosing malignant hyperthermia
- d) Myocardial perfusion

Correct Answer - C

Ans. is 'c' i.e., Diagnosing malignant hyperthermia

[Ref: Dorsch & Dorsch 4h/e p. 8901]

Uses of CapnoGRaphy

- It is the surest confirmatory sign of correct intubation in trachea.
- Incorrect position of tube in the esophagus instead of trachea (esophageal intubation) will yield ETCO₂ = 0.
- Diagnosing malignant hyperthermia → ETCO₂ increases significantly (more than 100 mg Hg).

781. Following is true about halothane except?

a) Volatile liquid with sweet odour

b) Sensitises heart to adrenaline

c) Constricts bronchii

d) Causes malignant hyperthermia

Correct Answer - C

Ans. is 'c' i.e., Constricts bronchii

Halothane

- It is a volatile liquid with *sweet odour, nonirritating and noninflammable*.
- It is a *potent anaesthetic with poor analgesic and muscle relaxant properties*.
- *Halothane causes direct depression of myocardial contractility by reducing intracellular Ca.*
- It causes fall in BP and CO.
- Heart rate decreases due to vagal stimulation.
- *It tends to sensitize the heart to arrhythmogenic action of adrenaline* → contraindicated in pheochromocytoma.
- It causes greater depression of respiration and ventilation perfusion mismatch.
- It dilates the bronchi → inhalation agent of choice in asthmatics (intravenous anaesthetic of choice in asthmatics is ketamine).
- It is a *hepatotoxic drug* and can also cause *malignant hyperthermia* (Succinylcholine accentuate it).
- Recovery is smooth and reasonably quick.
- It causes *postanaesthetic shivering and chills*.
- It inhibits intestinal and uterine contractions → agent of choice for

assisting external or internal version during late pregnancy.

- Because its uterine relaxant action it is contraindicated during labour.
- It is particularly suitable for induction and maintenance in children and as maintenance anaesthetic in adults.

782. Regarding propofol, which one of the following is false?

a) It is used as an intravenous induction agent

b) It causes severe vomiting

c) It is painful on injecting intravenously

d) It has no muscle relaxant property

Correct Answer - B

Ans. is 'b' i.e., It causes severe vomiting

Propofol

- Propofol is a milky white powder that is preservative free; therefore, it must be used within 6 hours. It is an oil based preparation, therefore injection is painful.
- Propofol is the most frequently used intravenous anaesthetic today. —Miller 6thie - 318
- It can be used for both induction as well as maintenance.
- It does not possess anticonvulsive action (unlike thiopentone).
- It causes fall in BP and bradycardia.
- Like thiopental it does not possess muscle relaxant action.
- Propofol possess significant antiemetic and antipruritic action. → Miller 6thie - 324
- Propofol decreases polymorphonuclear leukocyte chemotaxis but not adherence, phagocytosis and killing (Thiopentone blocks all these) —) increased life threatening infections.
- Propofol is particularly suitable for outpatient surgery.
- Intermittent injection or continuous infusion of propofol is frequently used for total Lv. anaesthesia (TINA) when supplemented by fentanyl.

- It is anaesthetics of choice for intubation in ICU and for patients with malignant hyperthermia.
- Side effects - pain on injection, myoclonus, apnea, L BP and rarely thrombophlebitis.
- Propofol infusion syndrome
 - .. A lethal syndrome, associated with infusion of propofol for 48 hours or longer.
 - 2. Occurs in children and critically ill.
 - 3. It occurs as a result of failure of free fatty acid metabolism and failure of the mitochondrial respiratory chain.
 - 1. Features are - cardiomyopathy with acute cardiac failure, metabolic acidosis, skeletal myopathy, hyperkalemia, hepatomegaly and lipemia

783. Positive end-expiratory pressure causes increase in which respiratory parameter ?

a) Lung compliance

b) FRC

c) Tidal volume

d) All of the above

Correct Answer - D

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

[Ref Fundamental of anaesthesia - 7961]

- Positive airway pressure therapy means providing positive pressure during breathing.

It may be :-

1. Positive end-expiratory pressure (PEEP)

- PEEP is the positive pressure is applied at the end of respiration during mechanical ventilation.

2. Pulmonary effects of PEEP and CPAP

- Positive pressure in PEEP & CPAP results in :-

Re-expansion (recruitment) and stabilization of partially collapsed lung which causes :-

- Increased FRC, tidal volume & lung compliance.
- Connection of ventilation/perfusion abnormalities → Improved oxygenation.

784. Reason of difficult intubation in an obese patient is?

a) Difficult visualization

b) Decreased safe apnea time

c) Lower tidal volume

d) All of the above

Correct Answer - D

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

Reasons for difrcult intubation in obese patients

- Increased soft tissue mass
- Increased pressure on diaphragm
- Reduced 'Safe Apnoea Time"

785. USG of a patient shows solitary hypoechoic lesion of liver with septa and debris which are characteristic of?

a) Caroli's disease

b) Simple cyst

c) Hydatid cyst

d) Liver abscess

Correct Answer - C

The sonographic appearance of **hydatid disease** includes a unilocular cyst; a complex cyst with multiple internal daughter cysts; a complex cyst with septations, echogenic debris, or floating membranes.

Daughter cysts appear as numerous small fluid-filled areas surrounded by thick walls inside a parent cyst.

The demonstration of daughter cysts is considered pathognomonic of hydatid disease.

Calcifications may be seen in the walls of the cysts or in the septations.

Ref: Pediatric Sonography By Marilyn J. Siegel, 2010, Page 242; Sleisenger 6th edition, Page 1381; Schiff 8th edition, Page 1085; Rumack's Diagnostic ultrasound 3rd edition, Page 86-94; Kuntz/Kuntz Hepatology Textbook and Atlas 3rd edition, Page 143-144.

786. Threshold radiation dose for hematological syndrome is?

a) 2 Gy

b) 6 Gy

c) 15 Gy

d) 50 Gy

Correct Answer - A

Ans. is'a'i.e., 2 Gy

[Ref: Harrison 15h/e p. 25901]

- Bone marrow or hematological syndrome:- Full syndrome occurs with a dose between 0.7 and 3 Gy (70-300 rads).
- The destruction of bone marrow cells results in pancytopenia.

787. Hummingbird sign in brain MRI is seen in ?

a) Multiple sclerosis

b) Progressive supranuclear palsy

c) Parkinson's disease

d) Alzheimer disease

Correct Answer - B

Ans. is 'b' i.e., Progressive supranuclear palsy

[Ref Clinical neurology - 113]

- Hummingbird sign on brain MRI is a radiological sign of progressive supranuclear palsy.

788. Nuchal translucency at 14 wks is suggestive of :

a) Down's syndrome

b) Oesophageal atresia

c) Trisomy 18

d) Foregut duplication cyst

Correct Answer - A

Ans. is a i.e. Down syndrome

Friends, before I go into the details of nuchal translucency I want to first explain why I have opted for Down syndrome as the answer and not Turner syndrome, though increased nuchal translucency is seen in both the conditions.

My answer is based on the following lines from *USG in Obs. & Gynae. by Callen*

"Johnson et al showed that simple nuchal translucency between 10 and 14 weeks were associated with a 60% incidence of abnormal karyotypes—mostly trisomy 21. Unlike the second trimester experience, in which large cystic hygromas were most often associated with turner syndrome, the 45X karyotype represented a minority of the karyotypic abnormalities in the group of fetuses with first trimester nuchal translucency thickening."

Nuchal translucency and its Significance :

- Nuchal translucency is a thickening of the nuchal soft tissues.
- Embryos with aneuploidy have an increased amount of fluid in the neck region resulting in increased NT measurement.
- The maximum thickness of the subcutaneous translucent area between the skin and soft tissue that overlies the fetus spine in the

sagittal plane is measured.

- A cut off of 3mm is used as threshold for an abnormal nuchal translucency in first trimester and 6mm for second trimester (16 - 20 weeks).
- Best time to assess nuchal translucency in first trimester 10 - 13 weeks.
- Best approach – Transvaginal (but trans abdominal is also reasonably good).
- It is best seen in the mid sagittal plane as a sonolucency at the back of fetal neck.

Note: Increased nuchal translucency itself is not a fetal abnormality, but rather a marker or soft sign that confers increased risk of fetal abnormality.

Causes of Increased nuchal translucency :

Down syndrome (Trisomy 21)

Trisomy 18 Trisomy 13

Turner syndrome

Klinefelter syndrome Triploidy.

- Nuchal translucency with large cystic hygroma is seen in Turners syndrome.
- Nuchal translucency with septations carries bad prognosis.
- Chromosomally normal fetus with increased nuchal translucency is associated with increased risk of :
 - Cardiac abnormalities°
 - Diaphragmatic hernia°
 - Anterior abdominal wall defect°
 - Fetal akinesia/dyskinesia syndrome°
- Therefore, ACOG recommends that when nuchal translucency measurement is 3.5 mm or more with a normal karyotype, then targeted sonographic examination or fetal echocardiography or both should be done.
- Nuchal translucency of > 3mm in 1st trimester identifies 67% of fetus with trisomy 21.
- Increased nuchal fold thickness (> 6mm) is the most sensitive and specific single ultrasound marker for the mid trimester detection of down syndrome.

Extra Edge :

- Nuchal translucency is the most important sonographic marker of aneuploidy in the first trimester whereas, Nuchal fold thickness (NFT) is the most important sonographic marker of aneuploidy in second trimester.
- NT is measured from external surface of the skull to the internal surface of the skin.
- NFT is measured from the external surface of occipital bone to the external surface of skin.
- NFT is useful for screening between 14-23 weeks.
- Cut off value for NFT is 5mm (above which it is considered abnormal).

Note: In the first trimester 2 most reliable ultrasonographic markers for detecting Down syndrome?

- .. Increased muscal translucency
- ?. Absent nasal bone.

789. A lady presented with 7 weeks amenorrhea presented with slight vaginal spotting. CRL was 5mm with well-formed gestational sac with calculated GA of 5.6 weeks on TVS. Next line of management?

a) Wait for another 1 week and repeat TVS

b) Surgical or medical evacuation

c) Wait for another 4 weeks

d) Serum hCG levels

Correct Answer - A

Ans: A. Wait for another 1 week and repeat TVS

Ref: *Williams obstetrics, 24th ed.*

- An intrauterine gestational sac is reliably visualized with transvaginal sonography by 5 weeks, and an embryo with cardiac activity by 6 weeks.
- The embryo should be visible transvaginally once the mean sac diameter has reached 20 mm, otherwise the gestation is anembryonic.
- Cardiac motion is usually visible with transvaginal imaging when the embryo length has reached 5 mm. If an embryo less than 7 mm is not identified to have cardiac activity, a subsequent examination is recommended in 1 week.

790. Double decidual sac sign is indicative of?

a) Ectopic pregnancy

b) Intrauterine pregnancy

c) H. mole

d) Twin pregnancy

Correct Answer - B

Ans. is'b'i.e., Intrauterine pregnancy

[Ref: sutton 7/e p. 1041 & callen 4th/e p . 114)

- If a double decidual sac sign is present, then it is highly suggestive that the intrauterine fluid collection is an intrauterine pregnancy.

791. Soft markers on ultrasonography are helpful in diagnosing?

a) Fetal age

b) Chromosomal anomalies

c) Fetal size

d) Site of pregnancy

Correct Answer - B

Ans. is'b'i.e., Chromosomal anomalies

- Antenatal soft ultrasound markers are fetal sonographic findings that are generally not abnormalities as such but are indicative of an increased age adjusted risk of an underlying fetal aneuploidic or some non chromosomal abnormalities.

792. Ring of fire on USG signifies?

a) H. mole

b) Ectopic pregnancy

c) PCOD

d) Aneuploidy

Correct Answer - B

Ans. is'b'i.e., Ectopic pregnancy

[Ref: Diagnostic Ultrasound: Abdomen and Pelvis E-Book p. 8011]

- The ring of fire sign also known as ring of vascularity signifies a hypervascular lesion with peripheral vascularity on colour or pulsed doppler examination of the adnexa due to low impedance high diastolic flow.

This sign can be seen in

- .. Corpusluteum cyst (more commonly)
- ?. Ectopic pregnancy

793. Most important mechanism of action of microwave irradiation is?

a) Thermal effect

b) Ionizing effect

c) Stereotactic effect

d) All of the above

Correct Answer - A

Ans. is'a'i.e., Thermal effect .

- Ref: cdn.intechopen.com/.../InTech-Prospective-application-of-microwaves-in-medicine
- The most important mechanism in medical applications of microwaves is the thermal effects of EM field.

794. Electron beam therapy is used for which tumor ?

a) Renal carcinoma

b) Kaposi sarcoma

c) Hepatic carcinoma

d) AML

Correct Answer - B

Ans. is'b'i.e., Kaposi sarcoma

[Ref: Textbook of radiotherapy - 1031]

- Electron-beam radiation therapy is the most common modality employed for the treatment of localized KS.

795. Patient presents with mass in parapharyngeal region pushing carotid artery backwards, the likely cause is ?

a) Carotid body tumor

b) Lymph node enlargement

c) Sternocleidomastoid tumor

d) None of the above

Correct Answer - A

Paragangliomas are clusters of neuroendocrine cells associated with the sympathetic and parasympathetic nervous system.

Paraganglioma is the tumor of neuroendocrine cells of these paraganglia that occurs at various body sites including head, neck, thorax and abdomen.

Most common location of paragangliomas is adrenal medulla, where they are referred to as pheochromocytomas.

Other locations are :

1) Paravertebral ganglion (organs of zuckerkanal) and rarely bladder.

2) Paraganglia related to the great vessels of head and neck, so called aorticopulmonary chain, including carotid bodies (most common); ganglion nodosum of vagus nerve; and clusters located about the oral cavity, nose nasopharynx, larynx, and orbit.

Note: Paragangliomas arising from the carotid body typically pushes the great vessels of the aorticopulmonary chain, thus the most likely diagnosis in this patient is a carotid body tumor.

796. On barium swallow Leiomyoma shows following characteristic appearance?

a) Rat tail appearance

b) Cork screw appearance

c) Oval mass lined by barium

d) String sign

Correct Answer - C

Ans. is 'c' i.e., Oval mass lined by barium

[Rel Atlas of Esophageal Surgery p. 1761]

- On barium swallow, leiomyoma may be seen as a discrete round or ovoid submucosal mass that is well outlined by barium.
- Its borders form slightly obtuse angles with the esophageal wall.
- Esophageal leiomyoma is a benign smooth-muscle neoplasm of the oesophagus.
- It is the most common benign tumor of the oesophagus.
- They typically involve the mid-to-distal oesophagus.

797. Aversion therapy is used in treatment of ?

a) Paraphilias

b) Tribaldism

c) Cunnilingus

d) Nymphomania

Correct Answer - A

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

(Ref: Nirai Ahuia 6h/e p. 2281

- Aversion therapy is used for the treatment of conditions which are pleasant but undesirable (e.g., alcoholism, trichotillomania, drug abuse and smoking).
- The underlying principle is the pairing of the pleasant stimulus (e.g., alcohol) with an unpleasant response (e.g., brief electric stimulus).
- Although aversion therapy can potentially eliminate almost any unwanted behavior, two of the most common applications of this treatment approach over the years are rehabilitation programs for sex offenders and drug and alcohol addiction treatment.

798. The following are the psychiatric sequelae after stroke in elderly

a) Depression

b) Post traumatic stress disorder

c) Both

d) None

Correct Answer - A
A i.e. Depression

799. When a person I asked about his blood sugar level, he answers like "Diabetics have sweet urine... urine and feces are excreta".... Before finally telling his blood sugar. It is an example of?

a) Tangentiality

b) Circumstantiality

c) Flight of ideas

d) Loosening of association

Correct Answer - B

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

(Reli Fish's clinical psychopathology 3'd/ed)

- In the given example, patient's goal is to tell the blood sugar level. But the patient does -not reach his goal directly; rather he gives irrelevant details and digressions.
- It is an example of circumstantiality.

800. A girl falls in love with a film star & believes that he also loves her. It is best exemplified by?

a) Persecutory delusion

b) Grandiose delusion

c) Erotomania

d) Nymphomania

Correct Answer - C

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

- Erotomania (Delusions of love): - False belief that another person is in love with one (commoner in woman).

801. Oedipus complex is related to which phase of psychosexual development ?

a) Oral

b) Anal

c) Genital

d) Phallic

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

802. A person thinks that others are implanting a machine on his head. It is an example of?

a) Bizarre delusions

b) Non bizarre delusions

c) Hallucinations

d) Illusion

Correct Answer - A

Ans. is'a'i.e., Bizarre delusion

Ref: Niraj Ahuja 6h/e p. 59)

- A bizarre delusion is a delusion that is very strange and completely implausible (impractical for the person's culture); for example a bizarre delusion would be that aliens have removed the affected person's brain.
- Bizarre delusions are characteristic of schizophrenia.

803. A person is very impatient, competitive and works like a perfectionist. He/she can be best described as ?

a) Type A personality

b) Type B personality

c) Type C personality

d) Type D personality

Correct Answer - A

Ans. is 'a' i.e., Type A personality

[Ref: Essential of clinical psychiatry 4h/e p. 889]

Type A personality:

- Impatient, time-conscious, highly competitive, ambitious, hostile, and aggressive.
- They have difficulty in relaxing and are concerned about their status.
- Type A individuals are often highly achieving workaholics, who do multitask, drive themselves with deadlines and are unhappy about the smallest of delay.
- Expressed in three major symptoms : -
 - .. Time urgency and impatience (Time pressure)
 - }. Free floating hostility
 - }. Competitiveness

804. Most common perceptual disturbance in delirium is?

a) Illusion

b) Decreased perceptions per unit of time

c) Visual Hallucination

d) Auditory hallucination

Correct Answer - B

Ans. is'b'i.e., Decreased perceptions per unit of time

lRef: Neurology in Clinical Practice: Principles of diagnosis and management 4h/e p. 301

- The most common perceptual disturbance is decreased perceptions per unit of time."

805. Which is true about age and sex distribution of Schizophrenia?

a) Most common age is >50 years

b) Early onset is a good prognostic factor

c) Male sex is a poor prognostic factor

d) Males are prone for the disease

Correct Answer - C

Ans. is 'c' i.e., Male sex is a poor prognostic factor

(Ref: Kaplan Sadock Synopsis 11/e p.480)

- The schizophrenia starts in late adolescent and early adult (15-25 years).
- Men and women have an equal lifetime risk for schizophrenia.
- However' schizophrenia tends to strike women 3-4 years later than men.
- Most men develop schizophrenia between 15 and 25 years of age.
- For women the period of maximum onset is between 15 and 30 with a smaller peak between 45 and 50 (after menopause).

806. Cataplexy is characterized by?

a) Hypnopompic hallucinations

b) Nocturnal penile tumescence

c) Decreased muscle tone

d) Somnambulism

Correct Answer - C

Ans. is 'c' i.e., Decreased muscle tone

[Ref Namboodiri 3'd/e p. 3601

- Cataplexy is the most common accessory symptom of Narcolepsy and is characterized by sudden decrease in muscle tone, either local or generalized.

807. Tic Douloureux is facial pain traveling through which of the following nerves?

a) Facial

b) Hypoglossal

c) Trigeminal

d) Vestibulocochlear

Correct Answer - C

Answer is C (Trigeminal nerve):

Tic Douloureux refers to the association of Hemifacial spasm with Trigeminal Neuralgia (Trigeminal nerve) Trigeminal neuralgia (TN, or TGN), also known as Prosopalgia, Fothergill's disease or formerly 'Suicide disease' is a neuropathic disorder characterized by episodes of intense pain in the face, originating from the trigeminal nerve. Pain is typically limited to the distribution of one or more divisions of the trigeminal nerve The pain often evokes spasm of the muscle of the face on the affected side. The clinical association between Trigeminal Neuralgia and hemifacial spasm is called Tic Douloureux.

**808. All are used in nicotine de-addiction,
except:
NIMHANS 10, 11**

a) Bupropion

b) Clonidine

c) Nicotine gum

d) Buspirone

Correct Answer - D
Ans. Buspirone

809. True about psychoactive drugs is?

a) Can cause sexual dysfunction

b) Used in OCD

c) Used in psychotic disorders and Used in drug withdrawal

d) All of these

Correct Answer - D

Ans: D. All of these

- All the above mentioned options are true about Psychotropic drugs
- A psychoactive drug or psychotropic substance is a chemical substance that acts primarily upon the central nervous system where it alters brain function, resulting in temporary changes in perception, mood, consciousness and behaviour.
- In addition , several psychoactive substances are currently employed to treat various addictions. These include acamprosate or naltrexone in the treatment of alcoholism, or methadone or buprenorphine maintenance therapy in the case of opioid addiction.

810. All are recognised features of Tourette's syndrome, EXCEPT:

a) Motor Tics

b) Ataxia

c) Coprolalia

d) Predominantly affects males

Correct Answer - B

Tourette's syndrome is a neurobehavioral disorder named after the French neurologist Georges Gilles de la Tourette. It predominantly affects males. TS is characterized by multiple motor tics often accompanied by vocalizations. Associated behavioral disturbances include anxiety, depression, attention deficit hyperactivity disorder, and obsessive-compulsive disorder.

Ref: Harrisons Principles of Internal Medicine, 18th Edition, Page 3332

811. Thiamine deficiency in a chronic alcoholic can reduce energy production as a result of which of the following reasons?

a) It is required for the process of transamination

b) It is a co-factor for oxidative reduction

c) It is a co-enzyme for transketolase in pentose phosphate pathway

d) It is a co-enzyme for pyruvate dehydrogenase and α -ketoglutarate dehydrogenase in TCA pathway

Correct Answer - D

Thiamine is a co-enzyme for **pyruvate dehydrogenase** and **α -ketoglutarate dehydrogenase** in the TCA pathway. Both the steps of the TCA cycle have thiamine requiring enzymes are required for the aerobic generation of ATP through krebs cycle. So thiamine deficiency can result in decreased energy production.

Ref: Textbook of biochemistry by DM Vasudevan, 3rd Edition, Page 268

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