

# 1. Maximum contribution to the floor of orbit is by:

a) Maxillary

b) Zygomatic

c) Sphenoid

d) Palatine

Correct Answer - A

## **Ans. A. Maxillary**

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

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

### **Also know:**

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

- The floor (inferior wall) is formed by the orbital surface of maxilla, the orbital surface of Zygomatic bone and the orbital process of palatine bone
- The seven bones that articulate to the orbit are
  1. Frontal bone
  2. Lacrimal bone
  3. Ethmoid bone
  4. Zygomatic bone
  5. Maxillary bone
  6. Palatine bone
  7. Sphenoid bone

## 2. Structures passing through Calot's triangle are all EXCEPT:

a) Portal vein

b) Cystic artery

c) Right hepatic artery

d) Lymph node of Lund

Correct Answer - A

Portal vein

THE HEPATOBILIARY TRIANGLE OR CYSTOHEPATIC TRIANGLE OR CALOT'S TRIANGLE:

Boundaries:

Common hepatic duct medially

Cystic duct inferiorly

Inferior surface of liver superiorly

Contents:

Cystic artery

Right hepatic artery

Lymph node of Lund

### 3. Which is a typical intercostal nerve?

a) First

b) Second

c) Third

d) Seventh

Correct Answer - C

Third

"Typical intercostal nerves are the ones that are confined to their own intercostal spaces in the thoracic wall. The third, fourth, fifth and sixth intercostal nerves are the typical nerves"

#### 4. Trendelenburg test is positive due to injury to which of the following nerve?

a) Obturator

b) Sciatic

c) Superior Gluteal

d) Inferior Gluteal

Correct Answer - C

**Ans. C. Superior Gluteal**

**A positive Trendelenburg is relatively non-specific and may indicate:**

- Pain (e.g. due to osteoarthritis of the hip joint)
- Weak hip abductors (gluteus medius, gluteus minimus)
- Short femoral neck/ fracture of neck
- Dislocation or subluxation of the hip
- Neuropathy

Gluteus medius and minimus are supplied by Superior Gluteal nerve.

Trendelenburg test

Normally when a person is made to stand on one leg, the hip abductors of the ipsilateral side raise the opposite and the unsupported side of the pelvis. If the abductor mechanism is defective, the unsupported side of the pelvis drops and this is known as positive Trendelenburg test.

## 5. Lateral boundary of cubital fossa is formed by:

a) Brachioradialis

b) Pronator teres

c) Brachialis

d) Biceps

Correct Answer - A

Brachioradialis

Boundaries of cubital fossa-

Laterally - Medial border of brachioradialis.

Medially - Lateral border of pronator teres.

Base - It is directed upwards, and is represented by an imaginary line joining the front of two epicondyles of the humerus.

Apex - It is directed downwards, and is formed by the area where brachioradialis crosses the pronator teres muscle.

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

a) Pterygopalatine ganglion

b) Mid third of maxillary artery

c) Maxillary nerve

d) Greater petrosal nerve

Correct Answer - B

The **pterygopalatine fossa** is the region between the pterygomaxillary fissure and the nasal cavity.

\* The fossa accommodates branches of the maxillary nerve [cranial nerve (CN) V-2], the pterygopalatine ganglion, the *terminal branches* of the maxillary artery, and greater superficial petrosal nerve.

7.

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

a) Middle meningeal artery

b) Accessory meningeal artery

c) Inferior alveolar artery

d) Greater palatine artery

Correct Answer - D

**Branches of maxillary artery:**

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

**Branches of mandibular part:**

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

**Branches of pterygoid part:**

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

**Branches of pterygopalatine part:**

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

- Lateral posterior nasal arteries
- Posterior septal branches

8. Ophthalmic artery is a branch of ?

a) Cavernous part of ICA

b) Cerebral part of ICA

c) MCA

d) Facial artery

Correct Answer - B

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

#### **Internal carotid artery**

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

\* Cervical part :- It extends from upper border of thyroid cartilage to the base of skull. This part gives no branch.

\* Petrous part :- It lies in bony carotid canal in the petrous temporal bone. It gives two branches (i) Caroticotympanic, and (ii) pterygoid.

\* Cavernous part :- It runs through the medial wall of cavernous sinus. It gives three branches : (i) Meningeal branch, (ii) hypophyseal branch and (iii) cavernous branch.

\* Cerebral part :- It is related to inferior surface of cerebrum. It gives following branches: (i) Ophthalmic artery, (ii) posterior communicating artery, (iii) anterior choroidal artery, (iv) anterior cerebral artery and (v) middle cerebral artery.

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9. Postganglionic fibres to parotid gland is supplied by?

a) Glossopharyngeal nerve

b) Auriculotemporal nerve

c) Both of the above

d) None of the above

**Correct Answer - B**

Preganglionic nerves travel in the lesser petrosal branch of the glossopharyngeal nerve and synapse in the otic ganglion. Postganglionic fibers reach the gland via the auriculotemporal nerve.

**Nerve supply of parotid gland**

Innervation of the salivary gland is as follows:-

Parasympathetic (secretomotor) :

→ They reach the gland through auriculotemporal nerve as the following route:-

Preganglionic fibers - Originate in the inferior salivary nucleus; pass through glossopharyngeal nerve; its tympanic branch; tympanic plexus, and lesser petrosal nerve.

Relay ganglion:- Otic ganglion.

Postganglionic fibers:- Pass through the auriculotemporal nerve to reach the gland.

Sympathetic (Vasomotor) :

→ Derived from the plexus around the middle meningeal artery.

Sensory: derived from the auriculotemporal nerve, except for parotid fascia and overlying skin which are innervated by the great auricular nerve(c2, c3)

**10.** Sensory supply to tongue is by all, EXCEPT?

a) Lingual nerve

b) Vagus nerve

c) Glossopharyngeal nerve

d) None of the above

**Correct Answer - D**

The sensory innervation of the tongue reflects its embryological development.

The nerve of general sensation to the presulcal part is the lingual nerve, which also carries taste sensation derived from the chorda tympani branch of the facial nerve.

The nerve supplying both general and taste sensation to the postsulcal part is the glossopharyngeal nerve.

An additional area in the region of the valleculae is supplied by the internal laryngeal branch of the vagus nerve.

**11.**

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

a) Palatoglossus

b) Palato pharyngeus

c) Tensor veli palatini

d) Tensor veli tympani

**Correct Answer - C**

The cranial root of the accessory nerve is smaller than the spinal root. It exits the skull through the jugular foramen and unites for a short distance with the spinal root. Its fibers innervate the pharyngeal and palatal muscles, except tensor veli palatini.

Because the cranial part of accessory nerve (CN XI) leaves the jugular foramen as joining the CN X, it is sometimes considered part of the plexus as well

The tensor veli palatini is supplied by the medial pterygoid nerve, a branch of mandibular nerve, the third branch of the trigeminal nerve - the only muscle of the palate not innervated by the pharyngeal plexus

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

a) Apical lymph nodes

b) Central lymph nodes

c) Lateral lymph nodes

d) Pectoral lymph nodes

Correct Answer - A

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

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

subclavicular,  
infraclavicular or apical).

**13.** A patient has a herniated intervertebral disc impinging on the right C5 nerve roots. Which of the following movements would most likely be affected?

a) Extension of the fingers

b) Extension of the shoulder

c) Flexion of the elbow

d) Flexion of the wrist

**Correct Answer - C**

C5 helps mediate flexion, abduction, and lateral rotation of the shoulder, and flexion of the elbow. Both C5 and C6 mediate extension of the elbow.

- Extension of the fingers is mediated by C7 and 8.
- Extension of the shoulder is mediated by C7 and 8.
- Flexion of the wrist is mediated by C6 and 7.

**14.** All are true about femoral triangle, EXCEPT?

a) Lateral margin is formed by sartorius

b) Floor is formed by adductor longus

c) Contains the femoral vessels

d) None of the above

Correct Answer - D

All are true about the femoral triangle

The femoral triangle is a depressed area of the thigh lying distal to the inguinal fold.

Its apex is distal, its limits are the medial margin of sartorius laterally, the medial margin of adductor longus medially and the inguinal ligament proximally (the base).

Its floor is provided laterally by iliacus and psoas major, medially by pectineus and adductor longus.

The femoral vessels, passing from mid base to apex, are in the deepest part of the triangle. Lateral to the artery the femoral nerve divides.

The triangle also contains fat and lymph nodes.

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

a) Adductor muscles

b) Quadriceps

c) Gluteus maximus

d) Gluteus medius and minimus

Correct Answer - D

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

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

**16.** Which of the following represent the commonest variation in the arteries arising from the arch of aorta?

a) Absence of brachiocephalic trunk

b) Left vertebral artery arising from the arch

c) Presence of retroesophageal subclavian artery

d) Left common carotid artery arising from brachiocephalic trunk

**Correct Answer - D**

Most common anomaly of the aortic arch seen in 10-20% individuals is characterized by the origin of the left common carotid artery from the brachiocephalic (innominate) trunk.

*Other common anomalies include:* A four vessel arch with separate origins for the right common carotid and right subclavian arteries (2.5%), Origin of the left vertebral artery directly from a four vessel aortic arch typically between the ostia of the left common carotid and subclavian arteries ( 2.4- 5.8%).

**17.** Which among the following is NOT a branch of Arch of Aorta?

a) Brachiocephalic

b) Right common carotid

c) Left common carotid

d) Left Subclavian

**Correct Answer - B**

The arch of the aorta begins at the level of the upper border of the second sternocostal articulation of the right side. The branches given off from the arch of the aorta are three in number: *the brachiocephalic artery (innominate), the left common carotid, and the left subclavian.*

Brachiocephalic Artery is the largest branch of the arch of the aorta. It divides into the right common carotid and right subclavian arteries.

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

a) Not Pierced by phrenic nerve

b) Attached to scalene tubercle on 2nd rib

c) Separates subclavian artery from subclavian vein

d) Pierced by phrenic nerve

Correct Answer - A

**Ans. (A) Not pierced by phrenic nerve**

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

**19.** Most common diaphragmatic hernia is:

a) Bochdalek hernia

b) Morgagni hernia

c) Paraesophageal hernia

d) None of the above

**Correct Answer - A**

Diaphragmatic hernias are of various types. The most common is a posterolateral (Bochdalek) hernia, which occurs as a result of a defect in the posterior diaphragm in the region of the tenth or eleventh ribs.

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

a) Tricuspid valve ring

b) Coronary sinus

c) Tendon of todaro

d) Limbus fossa ovalis

Correct Answer - D

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

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

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

**Importance:**

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

**21.**

**Esophagus is constricted at 4 anatomic locations. Narrowest part of esophagus lies at which of the following constriction?**

a) At the level of cricopharyngeal sphincter

b) At the crossing of aortic arch

c) At the crossing of left bronchus

d) At the level of opening in the diaphragm

**Correct Answer - A**

*Narrowest part of esophagus* is at its commencement at the cricopharyngeal sphincter which is 15cm from the incisor teeth.

*Other sites of esophagus where it is slightly constricted includes:*

- Crossing by the aortic arch which is 22cm from the teeth.
- Crossing by the left principal bronchus which is 27cm from the teeth
- At the opening in the diaphragm which is 38cm from the teeth

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

a) T1 to T5

b) T2 to T6

c) T3 to T7

d) T4 to T8

Correct Answer - A

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

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

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

**23.** All of the following are branches of splenic artery, except?

a) Hilar branches

b) Short Gastric Artery

c) Arteria Pancreatica Magna

d) Right Gastroepiploic Artery

**Correct Answer - D**

Right Gastroepiploic artery is a branch of superior mesenteric artery, a branch of hepatic artery. The left Gastroepiploic artery is a branch of splenic artery which anastomoses with the right Gastroepiploic artery.

**24.** A patient with external hemorrhoids develops pain while passing stools. Which of the following nerve mediating this pain?

a) Pudendal nerve

b) Hypogastric nerve

c) Sympathetic plexus

d) Splanchnic visceral nerve

### Correct Answer - A

*External hemorrhoids* are covered by the mucous membrane of the lower half of the anal canal or the skin, and they are innervated by the inferior rectal nerves. Inferior rectal nerve is a branch of pudendal nerve. Lower half of anal canal is sensitive to pain, temperature, touch, and pressure.

- The pectinate line indicates the level where the upper half of the anal canal joins the lower half.
- The mucous membrane of the upper half is sensitive to stretch and is innervated by sensory fibers that ascend through the hypogastric plexuses.
- The involuntary internal sphincter is supplied by sympathetic fibers from the inferior hypogastric plexuses.
- The voluntary external sphincter is supplied by the inferior rectal nerve, a branch of the pudendal nerve and the perineal branch of the fourth sacral nerve.

**25.** The boundaries of the interconnection between greater sac and lesser sac of peritoneum known as 'Foramen of Winslow' are all, EXCEPT:

a) Caudate lobe of liver

b) Inferior vena cava

c) Free border of lesser omentum

d) 4th part of Duodenum

**Correct Answer - D**

Interconnection between greater sac and lesser sac of peritoneum is known as Foramen of Winslow. It has the following boundaries:

**Superior boundary:** Caudate lobe of liver

**Anterior boundary:** Free edge of lesser omentum containing common bile duct, hepatic artery and portal vein.

**Inferior boundary:** First part of duodenum

**Posterior boundary:** Inferior vena cava and abdominal aorta

**26.** What is the number of layers in greater omentum?

a) 1

b) 2

c) 3

d) 4

**Correct Answer - D**

The greater omentum is folded back on itself and is therefore made up of four layers of closely applied visceral peritoneum, which are separated by variable amounts of adipose tissue.

**27.** All pass through deep inguinal ring, EXCEPT?

a) Spermatic cord

b) Internal spermatic fascia

c) Round ligament

d) Ilioinguinal nerve

### Correct Answer - D

It transmits the spermatic cord in the male and the round ligament of the uterus in the female into the inguinal canal. Internal spermatic fascia is present in the spermatic cord. Ilioinguinal nerve passes only through the superficial inguinal canal and not through deep.

**Inguinal canal:** contains the spermatic cord and the ilioinguinal nerve in the male, and the round ligament of the uterus and the ilioinguinal nerve in the female. It is an oblique canal of about 4 cm. long, slanting downward and medialward, and placed parallel with and a little above the inguinal ligament; it extends from the deep inguinal ring laterally to the superficial inguinal ring medially.

**Deep inguinal ring:** a hole in transversalis fascia lying 3cm superior to the midpoint of the inguinal ligament.

Contents:

- Spermatic cord in males
- Round ligament in females

**Superficial inguinal ring:** V-shaped defect in the lower medial fibres of the external oblique just superior and lateral to the pubic tubercle. Ilioinguinal nerve passes through superficial inguinal ring.

Contents of inguinal canal

- Spermatic cord in males
- Round ligament in females
- Ilioinguinal nerve in both males and females

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

a) Left gastric artery

b) Right gastric artery

c) Splenic artery

d) Hepatic artery

Correct Answer - B

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

**Branches of common hepatic artery are:**

- Proper hepatic artery
- Right gastric artery
- Gastrooduodenal artery: right gastroepiploic artery, superior pancreaticoduodenal artery are branches of gastrooduodenal artery.
- Cystic artery

**Branches of splenic artery:**

- Left gastroepiploic artery
- Short gastric branches
- Pancreatic branches

**29.** Inferior pancreaticoduodenal artery is a branch of which of the following artery?

a) Splenic artery

b) Left gastric artery

c) Gastroduodenal artery

d) Superior mesenteric artery

**Correct Answer - D**

Inferior pancreaticoduodenal artery is a branch of superior mesenteric artery. It supplies the pancreas and adjoining part of the duodenum. Its anterior and posterior branches anastomose with the branches of superior pancreaticoduodenal artery. This anastomosis is the only communication between the arteries of foregut and midgut.

**Branches of superior mesenteric artery are:**

- Inferior pancreaticoduodenal artery
- Jejunal and ileal branches
- Ileocolic artery
- Right colic artery
- Middle colic artery

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

a) Superior mesenteric vein & Splenic vein

b) Superior mesenteric vein & inferior mesenteric vein

c) Inferior mesenteric vein & Splenic vein

d) inferior mesenteric vein & Hepatic vein

Correct Answer - A

Portal vein is formed by the union of Superior mesenteric vein (SMV) and splenic vein posterior to the neck of pancreas. The inferior mesenteric vein drains into the splenic vein.

\* The hepatic portal vein pass posterior to the first part of duodenum, in the free edge of lesser omentum.

\* At the porta hepatis, it divides into right and left branches supplying the right and left lobes of the liver.

\* Within the sinusoids of the liver, hepatic portal blood and oxygenated blood from the hepatic artery mix together and come into contact with the hepatocytes, where metabolites such as products of digestion are exchanged.

\* Blood from the sinusoids empties into hepatic veins draining the liver and in turn drain into IVC, and blood is returned to heart.

**31.** Uvula vesicae seen in bladder is formed from the following structure ?

a) Median lobe of prostate

b) Lateral lobe of prostate

c) Anterior lobe of prostate

d) Posterior lobe of prostate

**Correct Answer - A**

*Uvula vesicae is a small elevation situated immediately behind the urethral orifice, which is produced by the underlying median lobe of the prostate. It enlarges with age due to enlargement of the underlying median lobe of the prostate and may inhibit complete bladder emptying.*

**32.** Facial nerve is a derivative of which of the following branchial arch?

a) First arch

b) Second arch

c) Third arch

d) Fourth arch

**Correct Answer - B**

Facial nerve is a derivative of second branchial arch. Muscles of facial expression derived from it are buccinator, auricularis, frontalis, platysma, orbicularis oris and orbicularis oculi. Additional muscles supplied by it are stapedius, stylohyoid, and posterior belly of digastric.

Branchial arch	Cranial nerve	Muscles
First mandibular	Trigeminal	Muscles of mastication: masseter, temporalis, medial and lateral pterygoid. Additional muscles: mylohyoid, anterior belly of digastric, tensor tympani, tensor veli palatini
Third	Glossopharyngeal	Stylopharyngeus
Fourth and sixth	Superior laryngeal, recurrent laryngeal branches of vagus	Pharyngeal and laryngeal muscles: cricothyroid, levator veli palatini, constrictors of pharynx, intrinsic muscles of larynx

**Ref:** Neuroscience for the Study of Communicative Disorders By Subhash Chandra Bhatnagar page 279.

**33.** Which of the following nuclei belong to the general visceral afferent column?

a) Facial nerve nucleus

b) Trigeminal nucleus

c) Dorsal nucleus of vagus

d) Nucleus ambiguus

Correct Answer - C

**Visceral afferent fibers**, also called **general visceral afferent fibers**, convey sensation from the alimentary tract, heart, vessels, and lungs by way of nerves IX and X. A specialized visceral afferent component is involved with the sense of taste; fibers carrying gustatory impulses are present in cranial nerves VII, IX, and X. *The general visceral afferent column is represented by part of the dorsal nucleus of the vagus nerve.*

**Ref:** Waxman S.G. (2010). Chapter 8. Cranial Nerves and Pathways. In S.G. Waxman (Ed), *Clinical Neuroanatomy*, 26e.

**34.** Which of the following statement regarding cell division is NOT TRUE?

a) Produces haploid number of chromosomes

b) Produces same number of chromosomes

c) Produces 2 cells

d) None of the above

**Correct Answer - A**

Mitosis is a nuclear division in which daughter cells receive the same number of chromosomes as that of parent cell. The daughter cells resulting from mitosis are identical to each other and also to the parent cell in the quantity and quality of genetic material.

**Mitosis:**

- It is the process that facilitates equal partitioning of replicated chromosomes into two identical groups.
- As a result of this two new daughter cells arise from one original cell.
- All the cells created through mitosis are genetically identical to one another and to the cell from where they came.
- The main purpose of mitosis in eukaryotic cells are growth of the individual, repair of tissue and asexual reproduction.

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

a) They are multipolar

b) They contain lipofuscin granules

c) They have centrally located nuclei

d) They are derived from neural crest cells

Correct Answer - A

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

**36. Suprarenal gland gets its blood supply from all of the following arteries except:**

a) Aorta

b) Renal artery

c) Inferior phrenic artery

d) Superior mesenteric artery

Correct Answer - D

D. i.e. Superior Mesenteric artery

Right suprarenal vein drain into *IVC* ; and left suprarenal vein drain into left *Renal vein* Suprarenal gland is supplied by suprarenal, renal, inferior phrenic artery and aorta

**37.**

## Internal anal sphincter is a part of:

- a) Puborectalis muscle
- b) Deep perineal muscles
- c) Internal longitudinal fibers
- d) Internal circular fibers

Correct Answer - D

D. i.e. Internal circular fibres

Involuntary internal anal sphincter is formed by *thickening of circular muscle layer (i.e. circular layer of muscularis externa, a smooth muscle)* of upper end (2/3 or 3/4) of anal canal. This sphincter *remains in the state of tonic contraction most of the time to maintain resting tone or pressures (-90 cm H<sub>2</sub>O) & to prevent leakage of fluid or flatus.* Its contraction (tonus) is maintained by *sympathetic fibers from superior rectal (periarterial) and hypogastric plexuses;* and inhibited (i.e. sphincter relaxed) by *parasympathetic pelvic splanchnic nerves.*

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

a) Superior rectal nerve

b) Inferior rectal nerve

c) Superior gluteal nerve

d) Inferior gluteal nerve

Correct Answer - B

B i.e. Inferior rectal nerve

*Through a posterior horse shoe shaped recess both ischiorectal fossae are connected behind the anal canal; so a unilateral abscess may become bilateral.*

During dissection of ischio rectal fossa, inferior rectal, pudendal, posterior scrotal or labial nerve & vessels along with perforating branches of S2-S3 and perineal branches of S4 nerve may get damaged.

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

a) Femoral branch of genitofemoral nerve

b) Femoral vein

c) Psoas major

d) All

Correct Answer - D

A i.e. Femoral branch of genitofemoral nerve; B i.e. Femoral vein ; C i.e. Psoas major

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

a) Internal pudendal vessel

b) Pudendal nerve

c) Obturator nerve

d) Nerve to obturator internus

Correct Answer - C

C. i.e. Obturator nerve

*Psoas major, iliacus & pectineus muscles, femoral vessels and nerve, femoral branch of genitofemoral nerve, lateral cutaneous nerve of thigh and lymphatics pass below inguinal ligament.*

*'PIN' structures i.e. Pudendal nerve, Internal Pudendal vessels, Nerve to obturator internus come out of greater sciatic foramen, cross the dorsal surface of ischial spine & enter into lesser sciatic foramen.*

## 41. The muscles attached to perineal body are A/E

a) Ischiocavernosum

b) Bulbospongiosm

c) Superficial transverse perinea

d) Deep transverse perinea

Correct Answer - A

A. i.e. Ischiocavernosus

Ten muscles of the 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.

## 42. All are components of Spermatic cord except :

a) Poupart's ligament

b) Genito-femoral nerve

c) Vas deferens

d) Pampiniform plexus

Correct Answer - A

A i.e. Poupart's ligament

Poupart's ligament is also called as inguinal ligament. It forms the base of inguinal canal.

Constituents of spermatic cord are:

- Ductus deferens
- Testicular and cremasteric arteries, and the artery of the ductus deferens
- Pampiniform plexus of veins
- Lymph vessels from the testis
- Genital branch of the genitofemoral nerve and the sympathetic nerve plexus around the artery to the ductus deferens and visceral afferent nerve fibres.
- Remains of the processus vaginalis.

**43.**

## Shortest part of male urethra is :

a) Prostatic

b) Membranous

c) Bulbar

d) Penile

Correct Answer - B

B i.e. Membranous

- Membranous urethra is *shortest* & Penile urethra is *longest* part.  
Prostatic urethra is *widest* & *most dilatable* portion & Urethral orifice  
f/19 membranous urethra is *narrowest* & *least dilatable* part

**44. Posterior communicating artery a branch of**

a) Internal carotid

b) External carotid

c) Middle cerebral

d) Posterior superior cerebellar

Correct Answer - A  
A i.e. Internal carotid

## 45. All are lateral branches of abdominal aorta, EXCEPT

a) Right testicular artery

b) Left renal artery

c) Inferior mesenteric artery

d) Middle suprarenal artery

Correct Answer - C

C. i.e. Inferior mesenteric artery

*Ovarian or Testicular artery* is lateral branch of abdominal aorta and *uterine artery* is a branch of internal iliac artery (anterior division).

Lateral branches of abdominal aorta are - Inferior phrenic, Middle Suprarenal, Renal & Gonadal (testicular or ovarian) arteries.

Mnemonic - "Inferior MS Ruin Gonads"

## 46. Arterial branches which supply the head and neck of the femur is/are:

a) Medial circumflex artery

b) Lateral circumflex artery

c) Profunda femoris artery

d) All

Correct Answer - D

A. i.e. Medial circumflex artery; B. i.e. Lateral circumflex artery; C. i.e. Profunda femoris artery

Proximal femur (head & neck) is supplied by artery of ligamentum teres (branch of obturator artery), *medial (main) & lateral circumflex femoral artery* (both arise from profunda femoris artery, give rise to ascending cervical (+ metaphyseal) and retinacular (+ epiphyseal:lateral & inferior) arteries and form extracapsular & intracapsular subsynovial arterial rings

## 47. True about Corpus callosum :

a) Unite far area of two sides of brain

b) Connect two frontal lobe

c) Unite two hemisphere

d) All

Correct Answer - D

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

**48. All are neural plate inducers except**

a) Notochord appearance

b) High BMP

c) FGF upregulation

d) Prechordal mesoderm

Correct Answer - B  
B i.e. High BMP

**49. Structures derived from the neural crest are?**

a) Pia

b) Dental papillae

c) Adrenal medulla

d) All of the above

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

**50. Jelly formed around the heart tube during early development, contributes to the formation of:**

a) Pericardium

b) Mesocardium

c) Myocardium

d) Endocardium

Correct Answer - C

C i.e. Myocardium

Dorsal mesocardium forms transverse pericardial sinus; somatopleuric mesoderm forms parietal pericardium; splanchnopleuric mesoderm forms myocardium & conduction system of hearts (i.e. Purkinje fibers) ; neural crest cells form subpulmonary infundibulum.

Cardiac jelly forms endocardial cushion and myocardium

## 51. Primary and secondary palates are divided by

a) Greater palatine foramen

b) Canine teeth

c) Alveolar arch

d) Incisive foramen

Correct Answer - D

D. i.e. Incisive foramen

*The incisive foramen is dividing landmark between the primary & secondary palate; and anterior & posterior cleft deformities*

## 52. 'Obstruction of Inferior vena cava' presents :

a) Paraumbilical dilatation

b) Thoraco-epigastric dilatation

c) Oesophagus varies

d) Haemorrhoides

Correct Answer - A:B

A. Paraumbilicus vein dilation and B i.e. Thoraco-epigastric dilatation  
The thoracoepigastric vein is unique in that it drains to both the [Superior Vena Cava](#) (SVC) and to the [Inferior Vena Cava](#) (IVC). Hence, it serves as an anastomotic caval-caval link between the two. Furthermore, the thoracoepigastric vein is connected to the [portal vein](#) via the [paraumbilical vein](#) and thereby serves as a portocaval anastomosis as well.

When a patient experiences [portal hypertension](#), there can be congestion (backup) of blood that enters into the [caval system](#) via the thoracoepigastric vein. When this occurs, there can be an externally visible dilation of the paraumbilical (and perhaps even the thoracoepigastric veins) which leads to the appearance of "Caput Medusae"

### 53. The right suprarenal vein drains into the

a) Inferior vena cava

b) Right renal vein

c) Right Gonadal vein

d) Left Renal vein

Correct Answer - A

A i.e. Inferior vena cava

Left testicular, ovarian or suprarenal vein usually drains into *left renal vein*, before entering the IVC

Organ	Vein	Drain into
Rt. Suprarenal gland	Rt. Suprarenal vein	IVC
Lt. Suprarenal gland	Lt. Suprarenal vein	<i>Left Renal Vein</i>
• Same is true for gonads (testis /ovary) i.e.		
Lt. Gonad (testis or ovary) or ovarian	Lt. Gonadal (testicular ovary) or ovarian	<i>Left renal vein</i>
Rt. Gonad (testis or ovary) or ovarian	Rt. Gonadal (testicular ovary) or ovarian	IVC

## 54. True about the anatomy of great saphenous vein:

a) Starts as a continuation of medial marginal vein

b) Ends of femoral vein 2.5 cm below the inguinal ligament

c) There are 2 - 5 valves below the knee.

d) Ascends 2.5 - 3 cm behind tibial malleolus

Correct Answer - A

A i.e. Starts as continuation- of medial marginal vein

## 55. Lymphatic drainage of cervix is to

a) Iliac lymph nodes

b) Para aortic lymph nodes

c) Superficial inguinal lymph nodes

d) Deep inguinal lymph nodes

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

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

a) T12 vertebra

b) T 6 vertebra

c) T5 vertebra

d) T2 vertebra

Correct Answer - C

C i.e. T5 vertebrae

Thoracic duct begins as continuation of the upper end of the cisterna chyli near the lower border of T12 vertebra and enters the thorax through the aortic opening of diaphragm (at T12 ).

It then ascends through the posterior mediastinum and at T5 level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck

## 57. Which of the following prevents hyperextension of thigh

a) Ischiofemoral ligament

b) Iliofemoral ligament

c) Patellofemoral ligament

d) Puboischial ligament

Correct Answer - B

B. i.e. Iliofemoral ligament

- Hip extension is limited by the iliofemoral ligament, which passes over the front of the hip joint and connects the ilium (hip bone) to the femur (thigh bone).
- This ligament elongates when the pelvis is tilted backwards, restricting the distance the joint can be extended.
- The iliofemoral ligament also limits external (outward) rotation of the hip joint when flexed, and it restrains both internal (inward) and external rotation when the joint is extended

## 58. Deltoid ligament is attached to all except:

a) Medial malleolus

b) Medial cuneiform

c) spring ligament

d) sustentaculum tali

Correct Answer - B

Ans. B i.e. Medial cuneiform

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

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

## 59. Ansa nephroni is lined by ?

a) Columnar

b) Squamous epithelium

c) Cuboidal and columnar epithelium

d) Stratified squamous epithelium

Correct Answer - B  
B i.e. Squamous epithelium

**60. Auerbachs plexus is present in the -**

a) Colon

b) Esophagus

c) Stomach

d) All of the above

Correct Answer - D  
All of the above

**61. Intercalated disc is present in:**

a) Cardiac muscle

b) Smooth muscle

c) Skeletal muscle

d) All

Correct Answer - A  
A. i.e. Cardiac muscle

## 62. Which is true about synovial joint ?

a) Stability is inversely proportional to mobility

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

c) Metacarpo-phalangeal joint is a hinge joint

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

Correct Answer - A

A i.e. Stability is inversely proportional to mobility

### 63. What is the uppermost structure in left lung hilum?

a) Pulmonary artery

b) Pulmonary vein

c) Bronchial artery

d) Left mainstem bronchus

Correct Answer - A

A i.e., Pulmonary artery

Arrangement of structures in the hilum is as follows -

1. Anterior to posterior (same on both side) :- (i) Superior pulmonary (ii) Pulmonary artery, (iii) Bronchus

2. Superior to inferior -vein,

a) Right :- (i) Eparterial bronchus (superior most)' (ii) Pulmonary artery, (iii) Hlparterial bronchus, (iv) Inferior pulmonary vein (inferior most).

b) Left :- (i) Puhnonary artery (superior most), (ii) Primary/Principal bronchus (iii) Inferior pulmonary vein (inferior most)

**64. Level of lower border of lung at mid axillary line is**

a) 6<sup>th</sup> rib

b) 8<sup>th</sup> rib

c) 10<sup>th</sup> rib

d) 12<sup>th</sup> rib

Correct Answer - B

B i.e. 8<sup>th</sup> rib

## 65. True about anatomy of right ventricle:

a) TV & PV Share fibrous continuity

b) More prominent trabeculation

c) Crista supraventricularis Separate Tricuspid valve & Pulmonary valve and Apex trabeculated both

d) All

Correct Answer - D

All Correct

Right ventricle is situated anteriorly. As the anterior (sternocostal) surface of heart consists mainly of right ventricle with right atrium on its right and a narrow strip of left ventricle left border. The tip of left auricular appendage peeps over the top of this border.

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

a) Temporalis

b) Medial pterygoid

c) Lateral pterygoid

d) Masseter

Correct Answer - B

B i.e. Medial pterygoid

*Temporalis, masseter and lateral pterygoid muscles* are supplied by anterior division of mandibular nerve whereas *medial pterygoid muscle* is supplied by the main trunk of mandibular nerve.

## 67. Nerve supply of stapedius is:

a) 2nd nerve

b) 3rd nerve

c) 5th nerve

d) 7th nerve

Correct Answer - D  
D. i.e. 7<sup>th</sup> nerve

**68. Small muscles of hand are supplied by:**

a) C3

b) C<sub>4</sub>

c) C6

d) C5-7 , C-8 to T1

Correct Answer - D

All small muscles of hand i.e. thener, hypothenar, interossei & lumbricals are supplied by *median and ulnar nerves which originate from C5-7 and C8 and T1 nerves.*

## 69. Nerve damaged due to lunate dislocation (in carpal tunnel):

a) Median & ulnar

b) Median

c) Ulnar

d) Radial

Correct Answer - B

B. i.e. Median nerve

- Common causes of median nerve palsy in carpal tunnel are carpal tunnel syndrome (most common) and lunate dislocation.

## 70. Tibial nerve injury/palsy causes:

a) Dorsiflexion of foot at ankle joint

b) Planter flexion of the foot at ankle joint

c) Loss of sensation of dorsum of foot

d) Paralysis of muscles of anterior compartment of leg

Correct Answer - A

A i.e. Dorsiflexion of foot at ankle joint

\* Tibial nerve (the larger component of sciatic nerve) supplies all muscles of posterior compartment of leg (gastrocnemius, soleus, plantaris, popliteus, tibialis posterior, FHL & FDL) plantar flexing the ankle & foot. Therefore, tibial nerve injury results in loss of planter flexion along with calcaneo-valgus attitude of foot (ie dorsiflexion & eversion d/t unopposed anterior compartment muscles).

- Deep peroneal (fibular) nerve supplies all anterior leg compartment muscles (tibialis anterior, EHL, EDL, EDB, PT) dorsiflexing the ankle & foot.

- Sole is supplied by medial & lateral plantar and sural branches of tibial nerve anteriorly (from medial to lateral) and calcaneal branches of tibial nerve posteriorly (i.e. over heel).

- It then passes along lateral side of foot and little toe supplying the overlying skin.

- Anterolateral aspect of leg, and dorsum of foot including 2<sup>nd</sup> - 4<sup>th</sup> web spaces are supplied by superficial peroneal nerve.

- Whereas deep peroneal (fibular) nerve supplies 1<sup>st</sup> web space (i.e. adjacent sides of great and second toes)

**71. A patient presents with defective adduction of the hip joint and pains in the hip and knee joint. Which nerve is involved**

a) Obturator nerve

b) Femoral nerve

c) Saphenous nerve

d) Sciatic nerve

Correct Answer - A

A. i.e. Obturator nerve

Adductors of thigh are mainly supplied by *obturator nerve*.

*A disease in hip joint may cause referred pain in knee & medial thigh because of their common nerve supply by obturator nerve.*

**72. All the following are characteristics of oculomotor nerve except:**

a) Carries parasympathetic nerve fibres

b) Supplies inferior oblique muscle

c) Enters orbit through the inferior orbital fissure

d) Causes constriction of pupil

Correct Answer - C

C i.e. Enters orbit through the inferior orbital fissure

Oculomotor nerve enters orbit through the superior orbital fissure. The visceral motor component controls parasympathetic innervation (nerves related to involuntary actions) of the ciliary muscles and constrictor papillae, aiding in accommodation and pupillary light reflexes.

The III cranial nerve supplies all extraocular muscles except Lateral rectus and superior oblique muscle.

### 73. Locking of knee joint can be caused by:

a) Osgood Schlatter

b) Loose body in knee joint

c) Tuberculosis of knee

d) a and b both

Correct Answer - D

**Ans. is. d. a and b both**

Locking of knee joint (i.e. joint held in flexion) is seen in meniscus tear, loose body (d/t **osteochondral** fracture) and fractures of tibial spine

Mechanism of Locking

Normally the medial meniscus or at least its anterior movable portion glides slightly backwards towards the interior of joint as the knee is flexed.

If the tibia is at the same time abducted (valgus) and the medial compartment of the knee thus opened up, the mobility of the meniscus is still further increased.

Sudden medial rotation of femur on the fixed tibia forces the medial meniscus towards back of joint and causes medial ligament to become taut and it may undergo variety of transverse or oblique tear.

The inner fragment slips into the interior of the joint and when , extension is attempted and the knee begins to screw home' the fragment is nipped between the condyles and the joint is 'locked' i.e. held in flexion.

## 74. Primordial germ cells are derived from:

a) Neural crest

b) Genital ridge

c) Somatopleuritic mesoderm

d) Yolk sac

Correct Answer - D

### **Formation of primordial germ cells**

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

## 75. Ligamentum arteriosum is derived from:

a) Ductus arteriosus

b) Ductus venosus

c) Ductus utriculosaccularis

d) Ductus reunions

Correct Answer - A

### **Ans. A: Ductus arteriosus**

The ductus arteriosus represents the distal portion of the sixth left aortic arch and connects the left pulmonary artery to the beginning of the descending aorta.

- During fetal life, blood passes through it from the pulmonary artery to the aorta, thus bypassing the lungs.
- After birth, it normally constricts, later closes, and becomes the ligamentum arteriosum.
- A persistent patent ductus arteriosus results in high-pressure aortic blood passing into the pulmonary artery, which raises the pressure in the pulmonary circulation.
- A patent ductus arteriosus is life threatening and should be ligated and divided surgically.

## 76. Trigone of urinary bladder develops from:

a) Mesoderm

b) Ectoderm

c) Endoderm of urachus

d) None of the above

Correct Answer - A

- With differential growth of the dorsal bladder wall, the ureters come to open through the lateral angles of the bladder, and the mesonephric ducts open close together in what will be the urethra.
- That part of the dorsal bladder wall marked off by the openings of these four ducts forms the trigone of the bladder.
- Thus, lining of the bladder over the trigone is mesodermal in origin;
- The smooth muscle of the bladder wall is derived from the splanchnopleuric mesoderm.
- The apex of the bladder is continuous with the allantois, which now becomes obliterated and forms a fibrous core, the urachus.
- The urachus persists throughout life as a ligament that runs from the apex of the bladder to the umbilicus and is called the median umbilical ligament
  - o Lining epithelium of bladder mucosa is transitional epithelium. When empty mucosa is thrown into rugae except in trigone, where mucosa is smooth and firmly adherent.
  - o just beneath the mucosa of trigone there is layer of smooth muscle, Trtgonal muscle of Bell which replaces the submucous coat in trigone area

## 77. Structure passes through upper triangular space:

a) Profunda brachii

b) Anterior circumflex humeral artery

c) Posterior circumflex humeral artery

d) Circumflex scapular artery

Correct Answer - D

### **Upper Quadrangular space**

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

## 78. Nerve roots involved in Erb's palsy:

a) C5, C6

b) C6, C7

c) C7, C8, T1

d) C5, C6, C7, C8, T1

Correct Answer - A

### **Erb-Duchenne Palsy**

Upper lesions of the brachial plexus are injuries resulting from excessive displacement of the head to the opposite side and depression of the shoulder on the same side. This causes excessive traction or even tearing of C5 and C6 roots of the plexus. It occurs in the newborn during a difficult delivery or in adults after a blow to or fall on the shoulder.

The suprascapular nerve, the nerve to the subclavius, and the musculocutaneous and axillary nerves all possess nerve fibers derived from C5 and C6 roots and will therefore be functionless. The following muscles will consequently be paralyzed: the supraspinatus (abductor of the shoulder) and infraspinatus (lateral rotator of the shoulder); the subclavius (depresses the clavicle); the biceps brachii (supinator of the forearm, flexor of the elbow, weak flexor of the shoulder) and the greater part of the brachialis (flexor of the elbow) and the coracobrachialis (flexes the shoulder); and the deltoid (abductor of the shoulder) and the teres minor (lateral rotator of the shoulder).

Thus, the limb will hang limply by the side, medially rotated by the unopposed sternocostal part of the pectoralis major; the forearm will be pronated because of loss of the action of the biceps.

The position of the upper limb in this condition has been likened to that of a porter or waiter holding for a tip. In addition, there will be a

that of a porter or waiter holding for a tip. In addition, there will be a loss of sensation down the lateral side of the arm.

**Treatment**

The three most common treatments from Erb's Palsy are: Nerve transfers (usually from the opposite leg), subscapularis releases and latissimus dorsi tendon transfers.

## 79. Structure passing deep to flexor retinaculum at wrist:

a) Ulnar nerve

b) Median nerve

c) Radial nerve

d) Ulnar artery

Correct Answer - B

The flexor retinaculum stretches across the front of the wrist and converts the concave anterior surface of the hand into an osteofascial tunnel, the carpal tunnel, for the passage of:

- The median nerve
- Flexor tendons of the thumb (flexor pollicis longus ) and fingers (flexor digitorum superficialis and profundus).
- Radial and the ulnar bursa

It is attached medially to the pisiform bone and the hook of the hamate and laterally to the tubercle of the scaphoid and the trapezium bones.

The attachment to the trapezium consists of superficial and deep parts and forms a synovial-lined tunnel for passage of the tendon of the flexor carpi radialis.

The lower border is attached to the palmar aponeurosis.

## 80. Azygous vein drains into:

a) Right subcostal vein

b) Superior vena cava

c) Braciocephalic

d) Right ascending lumbar vein

Correct Answer - B

The origin of the azygos vein is variable. It is often formed by the union of the right ascending lumbar vein and the right subcostal vein.

It ascends through the aortic opening in the diaphragm on the right side of the aorta to the level of the fifth thoracic vertebra.

Here it arches forward above the root of the right lung to empty into the posterior surface of the superior vena cava. The azygos vein has numerous tributaries, including the fifth to eleventh right posterior intercostal veins, the right superior intercostal vein, the hemiazygos and the accessory hemiazygos veins, and numerous esophageal, mediastinal and pericardial veins.

**81. Arch of aorta begins and ends at which level:**

a) T2

b) T3

c) T4

d) T5

Correct Answer - C

The arch of the aorta (Transverse Aorta) begins at the level of the upper border of the second sternocostal articulation of the right side, and runs at first upward, backward, and to the left in front of the trachea; it is then directed backward on the left side of the trachea and finally passes downward on the left side of the body of the fourth thoracic vertebra, at the lower border of which it becomes continuous with the descending aorta.

## 82. Azygos vein drains into:

a) Left brachiocephalic vein

b) Inferior vena cava

c) Superior vena cava

d) Right brachiocephalic vein

Correct Answer - C

The azygos vein ends by joining the posterior aspect of the superior vena cava

### **The Azygos Vein**

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

### 83. Vein used in bypass Surgery:

a) Great saphenous vein

b) Short saphenous vein

c) Femoral vein

d) Brachial vein

Correct Answer - A

In patients with occlusive coronary disease caused by atherosclerosis, the diseased arterial segment can be bypassed by inserting a graft consisting of a portion of the great saphenous vein. The venous segment is reversed so that its valves do not obstruct the arterial flow. Following removal of the great saphenous vein at the donor site, the superficial venous blood ascends the lower limb by passing through perforating veins and entering the deep veins. The great saphenous vein can also be used to bypass obstructions of the brachial or femoral arteries.

## 84. Superficial inguinal ring is a defect in the:

- a) Internal oblique aponeurosis
- b) External oblique aponeurosis
- c) Transverse abdominis aponeurosis
- d) Internal oblique muscle

Correct Answer - B

The inguinal canal is an oblique passage through the lower part of the anterior abdominal wall.

The canal is about 1.5 in. (4 cm) long in the adult and extends from the deep inguinal ring, a hole in the fascia transversalis, downward and medially to the superficial inguinal ring, a hole in the aponeurosis of the external oblique muscle. In the males, it allows structures to pass to and from the testis to the abdomen.

In females it allows the round ligament of the uterus to pass from the uterus to the labium majus.

## 85. True about fallopian tubes are all except :

a) Lined by cuboidal epithelium

b) Isthmus is the narrower part of the tube that links to the uterus

c) Tubal ostium is the point where the tubal canal meets the peritoneal cavity

d) Mullerian ducts develops in females into the Fallopian tubes

Correct Answer - A

The two uterine tubes are each about 4 in. (10 cm) long and lie in the upper border of the broad ligament.

Each connects the peritoneal cavity in the region of the ovary with the cavity of the uterus.

**The uterine tube is divided into four parts:**

The infundibulum is the funnel-shaped lateral end that projects beyond the broad ligament and overlies the ovary.

The tubal ostium is the point where the tubal canal meets the peritoneal cavity.

The ampulla is the widest part of the tube.

The isthmus is the narrowest part of the tube and lies just lateral to the uterus.

The intramural part is the segment that pierces the uterine wall.

**Function**

The uterine tube receives the ovum from the ovary and provides a site where fertilization of the ovum can take place (usually in the ampulla).

The inner mucous membrane of the uterine tube is lined by the ciliated columnar epithelium mixed with the nonciliated secretory cells or peg cells

The Mullerian ducts develops in females into the fallopian tubes, uterus and vagina, while the Wolffian ducts develops in males into

uterus and vagina, while the Wolffian ducts develop in males into the epididymis and vas deferens

## 86. Ovarian artery is a branch of:

a) Renal artery

b) Internal iliac artery

c) Abdominal part of the aorta

d) External iliac artery

Correct Answer - C

- The ovarian artery arises from the abdominal part of the aorta at the level of the first lumbar vertebra. The artery is long and slender and passes downward and laterally behind the peritoneum. It crosses the external iliac artery at the pelvic inlet and enters the suspensory ligament of the ovary.
- It then passes into the broad ligament and enters the ovary by way of the mesovarium.

## 87. Parotid duct opens opposite to:

a) Upper 1<sup>st</sup> molar

b) Upper 2<sup>nd</sup> molar

c) Upper 2<sup>nd</sup> premolar

d) Upper 1<sup>st</sup> premolar

Correct Answer - B

Ans. B: Upper 2nd molar

## 88. Largest cranial nerve is:

a) Trochlear

b) Trigeminal

c) Oculomotor

d) Vagus

Correct Answer - B

### Trigeminal

Longest intracranial course	Trochlear nerve
Longest course overall and most widely distributed	Vagus
Smallest (thinnest) cranial nerve	Trochlear nerve
Largest (thickest) cranial nerve	Trigeminal nerve
The only cranial nerve arising from dorsal aspect	Trochlear nerve
Only cranial nerve decussating completely before emerging	Trochlear nerve
Cranial nerve most commonly involved in basal skull fracture	Facial nerve
Cranial nerve most commonly involved in raised intracranial tension	Abducent nerve
Commonest cranial nerve affected in spinal anaesthesia	Abducent nerve
Cranial nerve most commonly involved in intracranial aneurysm	Oculomotor nerve
Cranial nerves carrying	3,7 , 9, 10

parasympathetic fibers

## 89. Nucleus ambiguus is not associated with which cranial nerve:

a) X

b) XI

c) IX

d) XII

Correct Answer - D

Ans. D: XII

Nucleus Ambiguus

### **Function:**

\* Motor innervation of ipsilateral muscles of the soft palate, pharynx, larynx and upper esophagus.

### **Pathway:**

\* Axons of motor neurons in the nucleus ambiguus course with three cranial nerves: C.N. IX (glossopharyngeal), C.N. X (vagus), C.N. XI (the rostral or cranial portion of spinal accessory) to innervate striated muscles of the soft palate, pharynx, larynx and upper esophagus.

### **Deficits:**

\* Lesion of nucleus ambiguus results in atrophy (lower motor neuron) and paralysis of innervated muscles, producing nasal speech, dysphagia, dysphonia, and deviation of the uvula toward the opposite side (strong side).

\* No affection of the Sternocleidomastoid or Trapezius. These muscles are innervated by cells in the rostral spinal cord (caudal portion C.N. XI).

**90.**

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

a) Agger nasi

b) Crista galli

c) Uncinate process

d) Inferior turbinate

Correct Answer - D

**Ans. d. Inferior turbinate**

*Inferior turbinate is not the part of ethmoid bone.*

'Lateral nasal wall has 3 bony projections called as turbinates or conchae. From below upwards, they are inferior, middle and superior turbinates. The inferior turbinate is a separate bone, while rest of the turbinates are part of ethmoidal labyrinths.'

The agger nasi air cells, are the most anterior ethmoidal air cells, lying anterolateral and inferior to the frontoethmoidal recess and anterior and above the attachment of the middle turbinate. They are located within the lacrimal bone and therefore have as lateral relations the orbit, the lacrimal sac and the nasolacrimal duct.'

The crista galli is a median ridge of bone that projects from the cribriform plate of the ethmoid bone. It is where the falx cerebri attaches anteriorly to the skull. The olfactory bulbs lie on either side of the crista galli on top of the cribriform plate.'

In the ethmoid bone, a curved lamina, the uncinata process, projects downward and backward from this part of the labyrinth; it forms a small part of the medial wall of the maxillary sinus, and articulates with the ethmoidal process of the inferior nasal concha.'

## 91. Meckel's cave is related to ?

a) Submandibular ganglion

b) Trigeminal ganglion

c) Otic ganglion

d) Pterygopalatine ganglion

Correct Answer - B

Ans. is 'b' i.e., Trigeminal ganglion

Trigeminal ganglion (Gasserian ganglion or semilunar ganglion) lies in a dural pouch, the cavum trigeminale (Meckel's cave).

## 92. Medulla oblongata is derived from ?

a) Telencephalon

b) Diencephalon

c) Mesencephalon

d) Myelencephalon

Correct Answer - D

Ans. is d i.e., Myelencephalon

Nervous system develops from ectoderm (neuroectoderm). Nervous system develops from neural tube which in turn develops by process of neurulation, i.e. formation of neural plate and its infolding into neural tube. Structures formed from neural tube are :?

A) From cranial part (enlarged cephalic part)

- Gives rise to brain. Developmental parts are :

i) *Forebrain (prosencephalon)*

- *Telencephalon* : Cerebral hemisphere and lateral ventricle.
- *Diencephalon* : Optic cup and stalk (gives rise to retina), pituitary, thalamus, hypothalamus, epithalamus, pineal gland, and third ventricle.

ii) *Midbrain (mesencephalon)*

- Cerebral aqueduct.

iii) *Hindbrain (rhombencephalon)*

- *Metencephalon* : Cerebellum, pons
- *Myelencephalon* Medulla oblongata

B) From caudal part

- Gives rise to spinal cord.

### 93. Morula is how many celled -

a) 4

b) 8

c) 12

d) 16

Correct Answer - D

Ans. is 'd' i.e., 16

- At about 16 cells stage the blastomeres tightly align by the process of compaction to form a compact ball of cells called morula (mulberry).
- This process of compaction leads to segregation of cells into two groups :
  - .. **Inner cells (inner cell mass)**
  - .. **Outer cells (outer cell mass)**
- Morula enters uterine cavity 4 days after fertilization.

**94. Anterior interosseous nerve is a branch of?**

a) Radial nerve

b) Median nerve

c) Ulnar nerve

d) Axillary nerve

Correct Answer - B

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

- Anterior interosseous nerve is a branch of median nerve.
- Anterior interosseous artery is a branch of ulnar artery.

## 95. Olecranon process of ulna helps in formation of?

a) Radial notch

b) Trochlear notch

c) Olecranon fossa

d) Coronoid fossa.

Correct Answer - B

Ans. is 'b' i.e., Trochlear notch

- Inner surface of olecranon process forms trochlear notch for articulation of trochlea of humerus.
- Radial notch is seen in lateral part of upper end of shaft (not on olecranon).
- Olecranon fossa and coronoid fossa are part of lower end of humerus.

## 96. True about cremasteric reflex?

a) Afferent: genital branch of genitofemoral nerve

b) Efferent: genital branch of genitofemoral nerve

c) Efferent: femoral branch of genitofemoral nerve

d) Afferent: pudendal nerve

Correct Answer - B

Ans. is 'b' i.e., Efferent : genital branch of genitofemoral nerve

## 97. Longest spinous process is seen in ?

a) C<sub>2</sub>

b) C<sub>4</sub>

c) C<sub>5</sub>

d) C<sub>7</sub>

Correct Answer - D

Ans. is 'd' i.e., C<sub>7</sub>

### **Cervical Vertebrae**

- There are 7 cervical vertebrae of which 3-6 are *typical* and 1st, 2nd and 7th are *atypical*. Characteristic features of typical cervical vertebra are : -
  - i. Foramen transversarium is present in the transverse process. Foramina transversaria of C1 to C6 vertebrae transmit vertebral artery, vertebral vein and sympathetic plexus, and that of C7 transmits only vertebral veins.
  - i. Body is small and broad transversely (side to side).
  - i. Spinous process is small and bifid.
  - i. Vertebral foramen is large and triangular.
  - i. Superior articular facet is directed backwards and upwards, and inferior facet is directed downwards and forwards. *Articular process are placed horizontally, So that dislocation can occur without fracture.*
  - i. The anterior tubercle on transverse process of C6 vertebra is prominent and is called carotid tubercle or Chassagnac's tubercle. It is related to common carotid artery which can be palpated against it. Erb's point is opposite Chassagnac's tubercle. Cricoid cartilage is at same level (C<sub>6</sub> vertebra).

- Important features of atypical vertebrae are : ?
- .. First cervical vertebra (atlas) is ring like bone having lateral mass on each side connected by a smaller anterior arch and a larger posterior arch. Anterior arch has a facet for dens of axis. Each lateral mass has an upper articular facet for occipital condyle and lower facet for body of C2 (axis) vertebra. C1 vertebra does not have body and spinous process.
- 2. Second cervical vertebra (axis) is characterized by presence of *odontoid process or dens*, a peg-like projection from the body.
- 3. Seventh cervical vertebra is called as vertebra prominens because it has most prominent spinous process which is not bifid. Foramen transversarium transmits only vertebral vein, not vertebral artery.

## 98. Malleus and incus are derived from ?

a) 1<sup>st</sup> Arch

b) 2<sup>nd</sup> Arch

c) 3<sup>rd</sup> Arch

d) 4<sup>th</sup> Arch

Correct Answer - A

Ans. is 'a' i.e., 1<sup>st</sup> Arch

1st (mandibular arch):-

**Muscular Contribution:-** Muscles of mastication, Anterior belly of the digastric, Mylohyoid, Tensor tympani, Tensor veli palatini.

**Skeletal Contributions:-** Maxilla, mandible (only as a model for mandible), Incus and malleus, Meckel's cartilage, Ant. ligament of malleus, Sphenomandibular ligament.

**Nerve:-** Trigeminal nerve (V2 and V3).

**Artery:-** Maxillary artery, external carotid artery.

## 99. First rib is not related to ?

a) Sympathetic chain

b) Scalenus anterior

c) Suprapleural membrane

d) T<sub>2</sub> Nerve

Correct Answer - D

Ans. is 'd' i.e., T<sub>2</sub> Nerve

**Anteriorly, the neck of the first rib is related to (from medial to lateral) :- (1) Sympathetic chain, (ii) 1<sup>st</sup> posterior intercostal vein, (iii) Superior intercostal artery, and (iv) 1<sup>st</sup> thoracic nerve. These structures are between neck of first rib (posteriorly) and apex of lung (anteriorly).**

Following are attached to first rib :- Scalenus anterior, scalenus medius, subclavius, serratus anterior ( 1<sup>st</sup> digitation), costo-clavicular ligament and suprapleural membrane.

## 100. Optic cup is derived from ?

a) Neural ectoderm

b) Surface ectoderm

c) Mesoderm

d) Neural crest

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

## 101. Pyramidalis is supplied by ?

a) Subcostal nerve

b) Ilioinguinal nerve

c) Iliohypogastric nerve

d) Genitofemoral nerve

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

## 102. Excretory system of kidney is derived from ?

a) Ureteric bud

b) Mesonephros

c) Metanephros

d) None

Correct Answer - C

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

### **Development of kidney**

- Ureteric bud (mesonephros) arise from mesonephric duct and gives rise to *collecting system* of kidney (renal pelvis, major and minor calyces, *collecting tubule*) and *ureter*.
- Metanephric mesoderm (blastema or metanephros) arise from *nephrogenic cord* which in turn is derived from intermediate mesoderm. It gives rise to *excretory unit (nephron)*, i.e. glomeruli, PCT, Loop of henle and DCT.

### 103. Derivative of vitelline vein?

a) IVC

b) SVC

c) Ligamentum venosum

d) Ligamentum teres

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

## 104. Sternochondral joint is ?

a) Primary cartilaginous

b) Secondary cartilaginous

c) Fibrous

d) Synovial

Correct Answer - A

Ans. is 'a' i.e., Primary cartilaginous

Costochondral (sternochondral) joints are primary cartilaginous joints.

### **Cartilaginous joints**

1) *Primary cartilaginous joints (synchondrosis, or hyaline cartilage joint)* : These are :-

- i. Joint between epiphysis and diaphysis of a growing long bone, i.e. physis.
- i. Spheno-occipital joint
- i. 1<sup>st</sup> costosternal joint (*1<sup>st</sup> chondrosternal joint*)
- i. *Costochondral joints*

2) *Secondary cartilaginous joints (Symphyses or fibrocartilaginous joints)* : These are :-

- i. *Symphysis pubis*
- i. manubriosternal joint
- i. Symphysis menti
- i. *Sacroccygeal joint*
- i. intervertebral disc

## 105. Sweat gland near the lid margins

a) Moll

b) Zeis

c) Meibomian

d) Krause

Correct Answer - A

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

- Glands of Moll (Moll's gland) are apocrine sweat glands just next to the eyelashes.
- Zeis glands are sebaceous glands near lid margins.
- Meibomian gland (tarsal glands) are specialized sebaceous gland at the rim of eyelids inside the tarsal plate.
- Krause's glands are accessory lacrimal glands underneath the eyelid.

## 106. Anterior lymphatics from the nose drain into ?

a) Pretracheal nodes

b) Submandibular nodes

c) Sublingual nodes

d) Superficial cervical nodes

Correct Answer - B

Ans. is 'b' i.e., Submandibular nodes

### **Submandibular nodes**

- These nodes lie deep to investing layer of deep cervical fascia in submandibular triangle, between the deep fascia and submandibular gland.
- These nodes receive afferents from centre of forehead; anterior part of nasal cavity; frontal, maxillary and ethmoidal air sinuses; inner canthus (medial angle of eye); whole of upper lip and anterior part of cheek with underlying gum and teeth; outer part of lower lip with lower gums and teeth excluding incisors; anterior two third of tongue excluding the tip; floor of mouth; and angle of mouth.
- These nodes also receives efferents of submental nodes.
- Submandibular nodes drain into (efferent) upper and lower deep cervical nodes.

**107.**

**Appendices epiploicae is seen in all part of large intestine except -**

a) Sigmoid colon

b) Ascending colon

c) Caecum

d) Transverse colon

Correct Answer - C

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

Small bags of peritoneum filled with fat, called *appendices epiploicae* are present over the surface of large intestine, *except for appendix, caecum and rectum.*

## 108. Innervated structures of joints are all except ?

a) Synovium

b) Capsule

c) Articular cartilage

d) Ligaments

Correct Answer - C

Ans. is 'c' i.e., Articular cartilage

### **Characteristic features of articular cartilage**

- 1) Hyaline cartilage
- 2) *No innervation (no nerve supply).*
- 3) No blood supply (avascular).
- 4) No lymphatics
- 5) Only hyaline cartilage which has no perichondrium.
- 6) No ability to repair or regenerate itself.

## 109. Not true about inferior extensor retinaculum?

a) Y shaped

b) Superior slip attached to lower end of fibula

c) Inferior slip attached to deep fascia of sole

d) Lateral attached to calcaneum

Correct Answer - B

Ans. is 'b' i.e., Superior slip attached to the lower end of the fibula

### **Inferior extensor retinaculum**

- It is a Y-shaped band lying in front of the ankle joint.

#### ***Attachments:-***

- The stem of the inferior extensor retinaculum is attached to the upper surface of the calcaneus in front of sulcus calcanei. Passing medially, the stem divides into two bands. The upper band passes upwards and medially to be attached to tibial malleolus. The lower band extends downwards and medially to blend with plantar aponeurosis.

#### **Structures passing deep to it are :**

- 1) Tibialis anterior tendon.
- 2) Extensor hallucis longus tendon.
- 3) Dorsalis pedis vessels.
- 4) The deep peroneal nerve.
- 5) Extensor digitorum longus tendons.
- 6) Peroneus Tertius tendon.

## 110. Inferior rectal artery is a branch of?

a) Inferior mesenteric artery

b) Superior mesenteric artery

c) Coeliac trunk

d) Internal pudendal artery

Correct Answer - D

Ans. is 'd' i.e., Internal pudendal artery

## 111. Superficial epigastric artery is a branch of?

a) Internal pudendal artery

b) External pudendal artery

c) Internal iliac artery

d) Femoral artery

Correct Answer - D

Ans. is 'd' i.e., Femoral artery

### **Branches of femoral artery**

1) *Superficial* :- Superficial external pudendal, superficial epigastric, superficial circumflex iliac.

2) *Deep branches* :- Profunda femoris, deep external pudendal, muscular branches, descending genicular branch (last branch in the adductor canal).

- Note: Superior epigastric artery is a branch of internal thoracic artery.

## 112. Inferior epigastric vein drains into?

a) Femoral vein

b) External iliac vein

c) Internal iliac vein

d) Internal pudendal vein

Correct Answer - B

Ans. is 'b' i.e., External iliac vein

- Inferior epigastric vein drains into External iliac vein.
- Superior epigastric vein drains into Internal thoracic vein.

### 113. Superior rectal vein drains into?

a) Inferior mesenteric vein

b) External iliac vein

c) Internal iliac vein

d) Internal pudendal vein

Correct Answer - A

Ans. is 'a' i.e., Inferior mesenteric vein

- Superior rectal vein drains into inferior mesenteric vein.
- Inferior rectal vein drains into internal pudendal vein.

## 114. Killian's dehiscence is seen in ?

a) Oropharynx

b) Nasopharynx

c) Cricopharynx

d) Vocal cords

Correct Answer - C

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

***Inferior constrictor muscle has two parts :-***

(i) *Thyropharyngeous* with oblique fibres, and (ii) *Cricopharyngeous* with transverse fibres.

Between these two parts of inferior constrictor exists a potential gap called Killian's dehiscence. It is also called the *gateway to tear* as *perforation* can occur at this site during esophagoscopy. It is also the site for herniation of pharyngeal mucosa in case of pharyngeal *pouch*.

## 115. Fossa incudis is related to ?

a) Head of malleus

b) Long process of incus

c) Short process of incus

d) Foot process of stapes

Correct Answer - C

- Fossa incudis contains short process of Incus.
- Head of malleus is attached to epitympanum by ligament of head of malleus.
- Long process of incus is attached to head of stapes.
- Footplate of stapes lies over oval window.

## 116. Unpaired laryngeal cartilage ?

a) Arytenoid

b) Corniculate

c) Cuneiform

d) Epiglottis

Correct Answer - D

The skeletal supports of larynx is provided by *Six cartilages*, 3 out of which are paired (so there are total 9 cartilages).

i) *Unpaired* :- Thyroid, cricoid, epiglottis.

ii) *Paired* :- Arytenoid, Corniculate, cuneiform.

**117. Which is the only nerve which exits the brainstem on dorsal side ?**

a) Facial

b) Trigeminal

c) Trochlear

d) Abducent

Correct Answer - C

**Unique features of trochlear nerve are :?**

- i) *Most slender cranial nerve.*
- ii) Only cranial nerve to emerge on the dorsal aspect of brain.
- iii) Only cranial nerve to undergo complete internal decussation before emerging i.e. right trochlear nerve arises from left trochlear nucleus and vice versa.
- iv) Has longest intracranial course (Vagus nerve has overall longest course).
- v) *Thinnest cranial nerve* (smallest nerve in terms of the number of axons it contains).

## 118. Ureteric bud arises from ?

a) Paramesonephric Duct

b) Mullerian duct

c) Mesonephric duct

d) Mesonephric tubule

Correct Answer - C

### **Genital duct system**

- During 5th and 6th weeks, both male and females have two genital duct systems, derived from mesoderm :
  - .. *Mesonephric duct (wolffian duct) and mesonephric tubules.*
  - .. *Paramesonephric duct (Mullerian duct).*
- Mesonephric duct is the main genital duct in males as it gives rise to mainly male genital system :

## 119. Pisiform articulates with -

a) Scaphoid

b) Trapezium

c) Triquetral

d) Lunate

Correct Answer - C  
Triquetral

## 120. True about popliteus are all except?

a) Flexor of knee

b) Intracapsular origin

c) Supplied by tibial nerve

d) Causes locking of knee

Correct Answer - D

### **Popliteus**

Popliteus is a deep muscle of posterior compartment of leg.

Features of popliteus are -

#### **Origin**

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

#### **Insertion**

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

#### **Nerve supply**

- Tibial nerve

#### **Action**

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

**121. 1<sup>st</sup> carpometacarpal joint is?**

a) Pivot

b) Hinge

c) Ball and Socket

d) Saddle

Correct Answer - D  
Saddle

## 122. Most common location of accessory spleen?

a) Hilum of spleen

b) Greater omentum

c) Lesser omentum

d) None

Correct Answer - A

**Accessory spleen may be found at :-**

i) Hilum of spleen (most common site).

ii) Tail of pancreas.

iii) *Derivatives of dorsal mesogastrium* :- Greater omentum, gastrophrenic ligament, gastrosplenic ligament, liorenal ligament.

iv) Broad ligament of uterus (in males) and spermatic cord (in female); both left side.

### 123. Testis lies at deep inguinal ring upto ?

a) 4 months

b) 5 months

c) 7 months

d) 9 months

Correct Answer - C

The testes develop in relation to the lumbar region of the posterior abdominal wall.

During fetal life, they gradually descend to the scrotum.

They reach the iliac fossa during third month, and *lie at the site of deep inguinal ring upto 7 month of intrauterine life.*

They pass through inguinal canal during seven month, and are normally in the scrotum by the end of eighth month.

## 124. Not true about development of ovary ?

a) Develops in genital ridge

b) Sex cords are derived from coelomic epithelium

c) Oocytes are mesodermal in origin

d) At birth ovary contains 2 million follicles

Correct Answer - C

### **Development of ovary**

- Coelomic epithelium on medial side of the mesonephros becomes thickened to form genital ridge, the site where ovary develops.
- Genital ridge is covered by germinal epithelium (previous coelomic epithelium). From these germinal epithelium, cords of cells (sex cords or medullary cords) proliferate and grow into the underlying mesoderm.
- Primordial germ cells which are developed from endodermal cells of hindgut (part of yolk sac), migrate to region of developing ovary (genital ridge area) and give rise to oocytes.
- The sex cords become broken up into small masses. The cells of each mass surround one oocyte to form primordial follicle.
- At birth each ovary contains about 2 million primary follicles.

## 125. Root value of supinator jerk -

a) C<sub>3</sub> C<sub>4</sub>

b) C<sub>4</sub>C<sub>5</sub>

c) C<sub>5</sub> C<sub>6</sub>

d) C<sub>8</sub> T<sub>1</sub>

Correct Answer - C

C<sub>5</sub> C<sub>6</sub>

## 126. True regarding semitendinosus ?

a) Supplied by common peroneal part of sciatic nerve

b) Proximal fleshy distal thin

c) Distal fleshy proximal thin

d) Proximal and distal thin middle fleshy

Correct Answer - D

Semitendinosus is a fusiform (spindle shaped) muscle with main mass in middle of it. It arises in thin tendon from ischial tuberosity and ends in a long tendon to insert on medial surface of proximal part of tibia. It is supplied by tibial part of sciatic nerve.

## 127. True about blood supply of scaphoid?

- a) Mainly through ulnar artery
- b) Major supply from ventral surface
- c) Major supply from dorsal surface
- d) Proximal supply in antegrade fashion

Correct Answer - C

Major blood supply (70-80%) of scaphoid comes through dorsal surface via dorsal branches of radial artery.

These dorsal vessels enter the scaphoid at or just distal to waist area and supply the proximal pole in retrograde fashion.

**128. Which of the following dorsiflexes the foot -**

a) Tibialis posterior

b) Tibialis anterior

c) Peroneus brevis

d) Extensor digitorum brevis

Correct Answer - B  
Tibialis anterior

## 129. Bare area of liver is related to -

a) Aorta

b) Hepatic vein

c) Portal vein

d) Gall bladder

Correct Answer - B

### **Hepatic vein**

- Between two layers of coronary ligaments, there is a large triangular area in diaphragmatic surface of liver which is not covered by peritoneum.
- It is called '*bare area of liver*'.
- It is related to inferior vena cava (IVC).
- The hepatic veins (usually three) leave the liver in bare area.
- This area is clinically important as it is a site where infection can spread from abdominal cavity to thoracic cavity.

### 130. Blood supply of putamen includes all except?

a) Medial striate arteries

b) Lateral striate arteries

c) Anterior choroidal artery

d) Posterior communicating artery

Correct Answer - D

#### **Blood supply of basal ganglia**

Caudate nucleus and putamen are supplied by *lateral and medial striate* branches of anterior, medial and posterior cerebral arteries.

*Putamen receives additional supply from anterior choroidal artery.*

Globus pallidus is supplied by lateral striate and anterior choroidal arteries.

### 131. True about notochord are all except?

a) Defines axis of embryo

b) Serves as primary inductor

c) Derived from hypoblast

d) Remains as nucleus pulposus

Correct Answer - C

- Notochord is a bud like structure formed by *epiblast cells* extending from cranial end of primitive streak to caudal end of prochordal plate, in between the ectoderm and endoderm. Significances of notochord includes following :-
  - i. *It defines the axis of embryo.*
  - i. *It functions as the primary inductor, inducing the overlying ectoderm to develop into neural plate (the primordium of CNS).*
  - i. *It serves as the basis for development of axial skeleton. The notochord is an intricate structure around which vertebral column is formed and indicates future site of vertebral bodies. However, the notochord does not give rise to vertebral column, after development of vertebral bodies, the notochord degenerates and disappears, but parts of it persist as the nucleus pulposus of intervertebral disc.*

## 132. Length of Eustachian tube?

a) 12 mm

b) 24mm

c) 36mm

d) 48mm

Correct Answer - C

- Length of Eustachian tube is 36 mm. (reached by the age of 7 years)
- *Lateral third (i.e. 12 mm) is bony.*
- *Medial 2/3 (i.e. 24 mm) is fibrocartilaginous.*

### 133. Right coronary artery supplies all, except?

a) Anterior 2/3 of ventricular septum

b) SA node

c) AV node

d) LBB

Correct Answer - A

#### **Right coronary artery supplies**

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

#### **Left coronary artery supplies**

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

### 134. Bicipital aponeurosis lies over which structure in cubital fossa?

a) Ulnar nerve

b) Radial nerve

c) Brachial artery

d) Anterior interosseous artery

Correct Answer - C

- Bicipital aponeurosis passes superficial to the *brachial artery and median nerve*. It lies deep to superficial veins.
- During venipuncture, the bicipital aponeurosis provides limited protection for brachial artery and median nerve.

**135. Structure over bicipital aponeurosis in cubital fossa?**

a) Ulnar nerve

b) Radial nerve

c) Brachial artery

d) Veins

Correct Answer - D  
Veins

**136.**

**2<sup>nd</sup> part of duodenum is derived from ?**

a) Foregut

b) Midgut

c) Both foregut & midgut

d) Hindgut

Correct Answer - C  
Both foregut & midgut

## 137. Artery piercing the oblique popliteal ligament of knee -

a) Superior genicular

b) Inferior genicular

c) Middle genicular

d) Popliteal

Correct Answer - C

Middle genicular

- Oblique popliteal ligament is an expansion from the tendon of semimembranosus attachment to intercondylar line of femur.
- It is closely related to popliteal artery and is pierced by middle genicular vessels and nerve and the terminal part of the posterior division of the obturator nerve.

### 138. True about circumcaval ureter ?

a) Developmental anomaly of ureter

b) Ureter passes in front of IVC from lateral to medial

c) Mostly involves right ureter

d) Type 2 is more common

Correct Answer - C

- Circumcaval (retrocaval) ureter results from altered vasculature rather than ureteral development. Thus, preureteral vena-cava is more appropriate term.
- This disorder involves right ureter which passes behind IVC winding about and crosses in front of it from medial to lateral direction.

**The anomaly is divided into two types :?**

- 1) *Type 1* : It is more common and has hydronephrosis with a typically obstructing pattern demonstrating some degree of fish-hook shaped deformity of ureter.
- 2) *Type 2* : It has lesser degree of hydronephrosis or not at all.

**139. Which of the following is a retroperitoneal structure?**

a) Ileum

b) Jejunum

c) Ureter

d) Appendix

Correct Answer - C  
Ureter

## 140. Falciparum ligament contains?

a) Ligamentum venosus

b) Ligamentum teres

c) Linorenal ligament

d) None of the above

Correct Answer - B

### Peritoneal ligaments

1. Gastrosplenic ligament :- It extends from hilum of spleen to greater curvature of stomach. It *contains short gastric and left gastroepiploic vessels*.
2. Linorenal ligament :- It extends from hilum of spleen to anterior surface of left kidney. It *contains splenic vessels and tail of pancreas*. It develops from *dorsal mesogastrium*.
3. Gastrophrenic ligament :- It connects the greater curvature of stomach to diaphragm. It develops from *dorsal mesogastrium*.
4. Phrenicocolic ligament :- It connects left colic (splenic) flexure to diaphragm. It supports the anterior border of spleen.
5. Falciform ligament :- It demarcates the right and left lobes of liver. It contains *ligamentum teres (remnant of left umbilical vein) and paraumbilical vein*. It develops of *ventral mesogastrium (ventral part)*.
6. Coronary ligaments :- It contains superior and inferior layers which connect liver to diaphragm, and encloses the triangular '*bare area of liver*'.
7. Triangular ligaments (a right and a left) :- These connect right and left lobes of liver to diaphragm. It develops from *ventral mesogastrium*.

**141. Parasympathetic supply to lacrimal glands are passed through ?**

a) Lesser petrosal nerve

b) Chorda tympani

c) Greater petrosal nerve

d) Lingual nerve

Correct Answer - C  
Greater petrosal nerve

**142.**

## Anterior part of interventricular septum is supplied by -

a) Right coronary artery

b) Left coronary artery

c) Posterior descending coronary artery

d) None

Correct Answer - B

Anterior 2/3rd of septum is supplied by LCA and posterior 1/3rd is by RCA

**143.**

## Part of colon with no mesentery?

a) Transverse colon

b) Sigmoid colon

c) Ascending colon

d) Rectum

Correct Answer - C

### Mesenteries in intestine

1) Mesentery proper :- Mesentery of small intestine (jejunum and ileum) is fan shaped double layered peritoneal fold which suspends the coils of jejunum and ileum. Mesentery has :?

**i) Attached border (root of mesentery) :-** It is 15 cm long and extends from duodenojejunal flexure (on left side of L<sub>2</sub>) to upper part of right sacroiliac joint.

**Root of mesentery crosses following structures :-**

(i) 3<sup>rd</sup> part (horizontal part) of duodenum,

(ii) abdominal aorta,

(iii) IVC,

(iv) right ureter, and

(v) right psoas major.

**ii) Free border (intestinal border) :-** It is 6 meters long and is attached to gut forming its visceral peritoneum (serous coat).

2) Transverse mesocolon :- It connects transverse colon to posterior abdominal wall and *contains middle colic vessels*.

3) Mesoappendix :- It connects the appendix to the ileal mesentery and *contains appendicular vessels*.

4) Sigmoid mesocolon :- It connects sigmoid colon to posterior pelvic wall and *contains sigmoid vessels*.

5) Mesorectum : It contains superior rectal vessels (artery & veins)

with their branches, lymphatic vessels and lymph nodes along superior rectal artery, and branches from inferior mesenteric plexus.

## 144. True about right principal bronchus ?

a) Narrower

b) Horizontal

c) Shorter

d) All are true

Correct Answer - C

**Features of right bronchus (in comparison to left bronchus)**

1) *Shorter*

2) Wider

3) Vertical (in the line of trachea).

## 145. Stroma of cornea develops from ?

a) Neural ectoderm

b) Surface ectoderm

c) Mesoderm

d) Neural crest

Correct Answer - C

Corneal epithelium develops from Surface ectoderm.

Corneal stroma develops from Mesoderm.

## 146. Female genital tract develops from ?

a) Mesonephric duct

b) Mesonephric tubules

c) Mullerian duct

d) None

Correct Answer - C

Mesonephric duct (Wolffian duct) is the main genital duct in males as it gives rise to mainly male genital system.

Paramesonephric duct (Mullerian duct) gives rise to mainly female genital tract

**147. Lateral dislocation of patella is prevented by ?**

a) Rectus femoris

b) Vastus intermedius

c) Vastus lateralis

d) Vastus medialis

Correct Answer - D  
Vastus medialis

## 148. Onodi cells are seen in?

a) Sphenoid sinus

b) Maxillary sinus

c) Anterior ethmoidal sinus

d) Posterior ethmoidal sinus

Correct Answer - D

**Ethmoidal sinuses are divided into two groups :**

A) Anterior group

i) *Anterior ethmoidal air cells*

- Anterior ethmoidal air cells drain into- *either the ethmoidal infundibulum or the frontonasal duct*. Some air cells may invade the orbital floor. These are known as the *Haller' cells*.

ii) *Middle ethmoidal air cells*

- Also known as bullar sinuses. The middle ethmoidal air cells drain- *into the middle meatus by one or more orifices on or above the ethmoidal bulla*.

B) Posterior group

- Posterior ethmoidal air cells usually drain- *into the superior meatus*. The posterior group lies very close to the optic canal and optic nerve. The *Onodi cell* is usually regarded as the most posterior ethmoid cell that pneumatizes lateral and superior to the sphenoid sinus and is intimately associated with the *optic nerve*.

**149. Which valve is present at opening of nasolacrimal duct?**

a) Hasner's valve

b) Heister valve

c) Spiral valve

d) None

Correct Answer - A

Nasolacrimal duct opens into inferior meatus and is closed by a mucosal flap called Hasner's valve.

Heister valve (spiral valve) is present in cystic duct.

## 150. Thoracic duct is formed by?

a) Union of left subclavian and left internal jugular vein.

b) Union of brachiocephalic vein and internal jugular vein

c) Continuation of upper end of cisterna chyli

d) None of the above

Correct Answer - C

Thoracic duct is also called as Pecquet duct.

- It is the *largest lymphatic duct* in body, about 45 cm (18 inches) long.
- It has a *beaded appearance* because of the presence of many valves in its lumen.
- Thoracic duct begins as a continuation of the upper end of the cisterna chyli near the lower border of **T<sub>12</sub>** vertebra and enters the thorax through the aortic opening of diaphragm (at **T<sub>12</sub>** ).
- It then ascends through the posterior mediastinum and at **T<sub>5</sub>** level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck.
- At the level of **C7** vertebrae, arches towards left side to open into left brachiocephalic vein at the angle of union of left subclavian and left internal jugular veins.

## 151. Thoracic duct opens into ?

a) Subclavian vein

b) Internal jugular vein

c) Right brachiocephalic vein

d) Left brachiocephalic vein

Correct Answer - D  
Left brachiocephalic vein

## 152. Submucosal plexus is ?

a) Myenteric plexus

b) Auerbach's plexus

c) Meissner's plexus

d) Tympanic plexus

Correct Answer - C

### **Innervation of GIT**

The gastrointestinal tract has a nervous system all its own called the *enteric nervous system*. It lies entirely in the wall of the gut, beginning in the esophagus and extending all the way to the anus. The enteric nervous system is composed mainly of two plexus : -

- i) Myenteric plexus or Auerbach's plexus
- ii) Meissner's plexus or submucosal plexus

Extrinsic nerves (Parasympathetic and sympathetic) are connected to both myenteric and submucosal plexuses. Enteric nervous system can function independently of these extrinsic nerves and these extrinsic nerves only modify the activity of the enteric nervous system.

Therefore, peristalsis is present even if the intestine is deprived of extrinsic innervation.

*Parasympathetic stimulation enhances GI motility and secretion where as sympathetic stimulation inhibits motility and secretions.*

## 153. Femoral nerve supplies all except ?

a) Pectineus

b) Sartorius

c) Vastus medialis

d) Obturator externus

Correct Answer - D

### **Branches of femoral nerve are :?**

1. From the main trunk :- Nerve supply to iliacus, nerve supply to pectineus and a few vascular branches.
2. From anterior division :- Intermediate femoral cutaneous nerve (intermediate cutaneous nerve of thigh), medial femoral cutaneous nerve (medial cutaneous nerve of thigh) and muscular branch to sartorius.
3. From posterior division :- Saphenous nerve, nerve supply to quadriceps femoris (rectus femoris, vastus medialis, vastus lateralis, vastus intermedius).
4. Articular supply :- Hip joint is supplied by nerve to rectus femoris; knee joint is supplied by nerve to three vasti.

## 154. Cribriform plate forms ?

a) Roof of olfactory region

b) Floor of olfactory region

c) Nasal septum

d) All of the above

Correct Answer - A

### **Internal nose**

Internal nose has following parts

*i) Nasal cavity proper* :- Internal nose is divided into right and left nasal cavities by nasal septum. Each nasal cavity communicates with the exterior through *naris or nostrils* and with nasopharynx through *posterior nasal aperture or posterior nares or choana*.

*ii) Vestibule of nose* :- Anterior and inferior part of the nasal cavity is lined by skin and is called vestibule of nose. It contains sebaceous glands, hair follicles and the hair called *vibrissae*.

Each nasal cavity has a lateral wall, a medial wall (nasal septum), a roof, and a floor.

The olfactory mucosa lines upper 1/3 of nasal cavity including the roof formed by cribriform plate, and medial and lateral wall up to the level of superior concha.

### 155. Dental papilla give rise to ?

a) Enamel

b) Dental cuticle

c) Tooth pulp

d) None

Correct Answer - C

*Repeat from previous sessions. See explanation-5 of session-1*

## 156. True about iliotibial tract all except?

a) Receives insertion of gluteus maximus

b) Derived from fascia lata

c) Inserted on lateral tibial condyle

d) None

Correct Answer - D

### **Iliotibial Tract**

The fascia lata is thickened laterally where it forms a 5 cm wide band called the iliotibial tract.

Superiorly the tract splits into two layers.

The superficial lamina is attached to tubercle of iliac crest, and deep lamina to the capsule of hip joint.

Inferiorly, the tract is attached to a smooth area on anterior surface of the lateral condyle of tibia.

The importance of the iliotibial tract is as follows.

a) Two important muscles are inserted into its upper part, between the superficial and deep laminae. These are the three-fourths part of the *gluteus maximus*; and the *tensor fasciae latae*.

b) The iliotibial tract stabilizes the knee both in extension and in partial flexion; and is, therefore, used constantly during walking and running.

## 157. False about sternocleidomastoid?

a) Arises from sternum and clavicle

b) Inserts on mastoid process

c) Motor supply by spinal accessory nerve

d) Tilt the head on opposite side

Correct Answer - D

### Sternocleidomastoid t sternomastoidl

#### Origin

1. The, *sternal head*
2. The *clavicular head*

#### Insertion

#### It is inserted :

1. By a thick tendon into the lateral surface of *mastoid process*, from its tip to superior border.
2. By a thin apponeurosis into the lateral half of the *superior nuchal line* of the occipital bone. Nerve supply
3. The spinal accessory nerve provides the motor supply. It passes through the muscle.
4. Branches from the ventral rami of C2 are proprioceptive.

#### Blood supply

- Arterial supply-one branch each from superior thyroid artery and suprascapular artery and, two branches from the occipital artery supply the big muscle.
- Veins follow the arteries.

#### Actions

1. When one muscle contracts :

- a) It turns the chin to the opposite side.
- b) *It can also tilt the head towards the shoulder of same side.*

2. When both muscles contract together :

2. when both muscles contract together .

- a) They draw the head forwards, as in eating and in lifting the head from a pillow.
- b) With the longus colli, they flex the neck against resistance.
- c) It also helps in forced inspiration.

## 158. False regarding trigone of bladder ?

- a) Lined by transitional epithelium
- b) Mucosa smooth and firmly adherent.
- c) Internal urethral orifice lies at lateral angle of base
- d) Developed from mesonephric duct

Correct Answer - C

**Trigone of bladder has following features :**

- 1) Lined by transitional epithelium
- 2) Mucosa is smooth and firmly adherent
- 3) Ureters open at lateral angles of base and internal urethral orifice lies at apex.
- 4) Has Trigonal muscle of bell (smooth muscle layer just beneath mucosa).
- 5) Derived from absorbed part of mesonephric duct (Wolffian duct).

**159. Boundaries of quadrilateral space include all except?**

a) Teres major

b) Long head of triceps

c) Neck of humerus

d) Deltoid

Correct Answer - D  
Deltoid

## 160. Lamina papyracea is between ?

a) Optic nerve and orbit

b) Maxillary sinus and orbit

c) Ethmoid sinus and orbit

d) Cranial cavity and orbit

Correct Answer - C

The thinnest portion of medial wall of orbit is the lamina papyracea which *separates ethmoid sinuses from orbit*. o Infection from ethmoidal sinus can easily breach this paper thin bone and affect the orbital contents.

## 161. Glomus cells are derived from ?

a) Surface ectoderm

b) Neuroectoderm

c) Mesoderm

d) Endoderm

Correct Answer - B

Glomus cells are derived from neural crest which itself is derivative of neuroectoderm.

- Other derivatives of **neural crest** are?
  - a) Neural derivatives**
    - Sensory neurons of **spinal dorsal root ganglia**.
    - **Sympathetic chain ganglia and plexus** (celiac/preaortic/renal ganglia, enteric plexus in **GIT**, i.e. Auerbach's and Meissner's)
    - Parasympathetic ganglia and plexus of GIT.
    - Schwann cells of peripheral nerves, satellite cells of all ganglia.
    - **Adrenal medulla**, chromaffin cells, parafollicular C-cells of thyroid gland.
    - Melanocytes and **melanoblasts**.
  - b) Mesenchymal derivatives**
    - Dermal bones of skull : Frontal, parietal, temporal, nasal, vomer, palatine, mandible, maxillae.
    - Leptomeninges : arachnoid and pia mater (Dura mater is mesodermal).
    - Dentine of teeth (odontoblasts).
    - **Eye : choroid, sclera, iris epithelium, pupillary muscles (sphincter and dilator pupillae, ciliary muscles).**
    - Pharyngeal arch cartilages.

- Retinal pigmented epithelium.
- Connective tissues of head including dermis, tendon, ligaments.
- Bulbar and conal ridges of heart.

## 162. Axillary artery is divided into three parts by?

a) 1<sup>st</sup> rib

b) Clavicle

c) Pectoralis minor muscle

d) Teres minor muscle

Correct Answer - C

### **Axillary artery**

- It is the main artery of upper limb. *It begins at the level of outer border of first rib as a continuation of subclavian artery.* It ends at the level of lower border of teres major to continue as brachial artery.
- The axillary artery is covered anteriorly by pectoralis minor, which divides it into three parts:?
  - 1) First part :- This part is proximal to upper border of pectoralis minor, i.e. extends from outer border of first rib to upper border of pectoralis minor. The branch of first part is *Superior thoracic artery*.
  - 2) Second part :- This part is behind pectoralis minor. It gives following branches.
    - A) *Thoracoacromial artery* :- It pierces clavipectoral fascia and gives following branches :-
      - (i) *Acromial*
      - (ii) *Pectoral*,
      - (iii) *Clavicular and deltoid*.
    - B) *Lateral thoracic artery*
  - 3) Third part :- This part is distal to lower border of pectoralis minor, i.e. extends from pectoralis minor (lower border) to teres major (lower border). It gives following branches ?
    - A) *Subscapular artery*:- It gives off *circumflex scapular artery* and

then continues as *thoracodorsal artery*.

B) *Anterior circumflex humeral artery*.

C) *Posterior circumflex humeral artery*.

- Anterior and posterior circumflex arteries (both are branches of 3<sup>rd</sup> part of axillary artery) forms anastomosis around surgical neck of humerus.

## 163. Tongue muscle which is not developed from occipital myotome ?

a) Styloglossus

b) Hyoglossus

c) Genioglossus

d) Palatoglossus

Correct Answer - D

### **DEVELOPMENT OF THE TONGUE :?**

#### I. Epithelium

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

#### II. Muscles

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

## 164. Korner's septum is seen in ?

a) Petrosquamous suture

b) Temporosquamous suture

c) Petromastoid suture

d) Frontozygomatic suture

Correct Answer - A

Mastoid develops from squamous and petrous bone.

Korner's septum is persistence of petrosquamous suture in the form of a bony plate.

Korner's septum is surgically important as it may cause difficulty in locating the antrum and the deeper cells, and thus lead to incomplete removal of disease at mastoidectomy. Mastoid antrum cannot be reached unless the

Korner's septum has been removed.

## 165. False about tibia-fibula is ?

a) Nutrient artery of tibia is from posterior tibial artery

b) Nutrient artery of fibula is from peroneal artery

c) Proximal end of tibia is related to common peroneal nerve

d) Tibia is the most common site of osteomyelitis

Correct Answer - C

- Common peroneal nerve is related to neck of fibula (not tibia).
- Nutrient artery of tibia is a branch of posterior tibial artery.
- Nutrient artery of fibula is a branch of peroneal artery.
- Tibia is the commonest site of osteomyelitis.

## 166. Posterior wall of axilla is formed by

a) Pectoralis major

b) Pectoralis major

c) Subscapularis

d) Intercostal muscles

Correct Answer - C

### **Axilla (armpit)**

- The axilla is *apryramidal space* situated between the upper part of the arm and the chest wall. It resembles a four sided pyramid, and has following : (i) an apex (ii) a base (iii) four walls (anterior, posterior, medial and lateral).
- 1. Anterior (pectoral) wall :- Formed by (i) *Pectoralis major*, (ii) *Pectoralis minor*, and (iii) *Subclavius*. The latter two muscles enclosed by clavipectoral fascia.
- 2. Posterior (subscapular) wall :- Formed by (i) Subscapularis, (ii) Teres major, and (iii) Latissimus dorsi.
- 3. Medial (thoracic) wall :- Formed by (i) Upper four ribs (with their intercostal muscles), and (ii) Upper part of serratus anterior.
- 4. Lateral (humeral) wall :- Formed by (i) Upper part of humerus with bicipital groove lodging the tendon of long head of biceps, and (ii) Coracobrachialis and short head of biceps ?
- 5. Base :- Formed by Skin, superficial fascia and deep (axillary) fascia. It is directed downwards.

Apex :- It is directed upwards and medially towards the root of neck. It communicates with supraclavicular triangle of neck, hence referred to as Cervicoaxillary canal. It is triangular in shape and is bounded anteriorly by clavicle, posteriorly by upper part of scapula and medially by outer border of first rib. The axillary artery and brachial plexus enter the axilla through this canal.

plexus enter the axilla through this canal.

## 167. Intracapsular but extrasynovial is ?

a) Long head of triceps

b) Long head of biceps

c) Short head of biceps

d) Medial head of biceps

Correct Answer - B

Origin of long head of biceps is intracapsular but extrasynovial, enclosed by a prolongation of synovial membrane of shoulder joint.

## 168. Posterior relation of hilum of lung ?

a) Azygous vein

b) SVC

c) Vagus nerve

d) Arch of aorta

Correct Answer - C  
Vagus nerve

## 169. What is true about chorda tympani?

a) Postganglionic sympathetic

b) Preganglionic sympathetic

c) Preganglionic parasympathetic

d) Postganglionic parasympathetic

Correct Answer - C

Chorda tympani arises from intratemporal part (in fallopian canal) of facial nerve.

\* It carries preganglionic secretomotor fibers (not postganglionic) to submandibular and sublingual glands.

\* It joins lingual nerve in infratemporal fossa.

\* It carries taste sensations from anterior 2/3 of tongue.

## 170. Nephron is derived from ?

a) Ureteric bud

b) Mesonephric duct

c) Metanephros

d) Mesonephros

Correct Answer - C

### **Development of kidney**

- Ureteric bud (mesonephros) arise from mesonephric duct and gives rise to *collecting system* of kidney (renal pelvis, major and minor calyces, *collecting tubule*) and *ureter*.
- Metanephric mesoderm (blastema or metanephros) arise from *nephrogenic cord* which in turn is derived from intermediate mesoderm. It gives rise to *excretory unit (nephron)*, i.e. glomeruli, PCT, Loop of henle and DCT.

**171. Position of testis at 24-28 weeks of intrauterine life?**

a) Inguinal canal

b) Lumbar region

c) Superficial inguinal ring

d) Deep inguinal ring

Correct Answer - D  
Deep inguinal ring

## 172. Watershed zone of large intestine ?

a) Cecum

b) Ascending colon

c) Rectosigmoid

d) Transverse colon

Correct Answer - C

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

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

**173. Skin over hypothenar eminence is supplied by?**

a) Radial nerve

b) Median nerve

c) Anterior interosseous nerve

d) Ulnar nerve

Correct Answer - D  
Ulnar nerve

## 174. Cremasteric artery is a branch of?

a) Internal pudendal artery

b) External pudendal artery

c) Inferior epigastric artery

d) Superior epigastric artery

Correct Answer - C  
Inferior epigastric artery

## 175. Ligament extending from cervix and vagina to lateral pelvic wall ?

a) Broad ligament

b) Pubocervical ligament

c) Round ligament

d) Transverse cervical ligament

Correct Answer - D

- Transverse cervical ligaments of Mackenrodt are fan-shaped condensation of endopelvic fascia on each side of cervix above the levator ani and around uterine vessels.
- They connect lateral aspect of cervix and upper vaginal wall to lateral pelvic wall.
- They form a '*hammock*' that supports the uterus.

## 176. Epithelium of vagina arises from?

a) Ectoderm

b) Wolffian duct

c) Mesoderm

d) Mesonephric duct

Correct Answer - C

**Vagina is derived from two sources :-**

- .. Upper 2/3<sup>rd</sup> : It is derived from *Utero-Vaginal Canal*, i.e. the fused part of paramesonephric duct. Therefore, this part is mesodermal in origin.
- ?. Lower 1/3<sup>rd</sup> : It is derived from *sinovaginal bulb* which in turn is derived from *urogenital sinus*. Thus, this part is *endodermal* in origin.

## 177. Not related to hilum of right lung?

a) Azygous vein

b) Vagus nerve

c) SVC

d) Arch of aorta

Correct Answer - D  
Arch of aorta is related to left lung.

**178. Anterior axillary fold is due to which muscle ?**

a) Pectoralis major

b) Pectoralis minor

c) Subscapularis

d) Teres major

Correct Answer - A

Anterior axillary fold is rounded in shaped and is formed by pectoralis major (lower border). Posterior axillary fold is formed by teres major and latisimus dorsi.

## 179. True about Scarpa's fascia ?

a) Deep fascia of anterior abdominal wall

b) Also called Buck's fascia

c) Attached to Iliotibial tract

d) Forms suspensory ligament of penis

Correct Answer - D

### **Fascia of anterior abdominal wall**

A) Superficial fascia

The superficial fascia of anterior abdominal wall (below the level of umbilicus) is divided into : Superficial fatty layer (*fascia of camper or camper's fascia*), and deep membranous layer (*fascia of scarpa or scarpa's fascia*).

The fatty layer (fascia of camper) is continuous with the superficial fascia of adjoining part of the body.

However, in the penis it is devoid of fat and in scrotum it is replaced by dartos muscle, i.e., in scrotum dartos muscle is present instead of fatty layer of superficial fascia.

B) Deep fascia

It is present in the form of a thin layer covering the muscles and their aponeuroses and large neurovascular structures. At superficial inguinal ring it continues over the spermatic cord as external spermatic fascia into scrotum and continue over the penis as deep fascia of penis (Buck's fascia).

## 180. Skeletal derivative of 1<sup>st</sup> arch ?

a) Stapes

b) Hyoid

c) Maxilla

d) Laryngeal cartilages

Correct Answer - C  
Maxilla

**181. Which of the following is derived from 1<sup>st</sup> arch?**

a) Frontonasal process

b) Maxillary process

c) Mandibular process

d) Both maxillary & mandibular processes

Correct Answer - D

**Face is developed from five facial primordia appear as prominences of mesenchyme:?**

1. *One frontonasal process* : Begins as a proliferation of mesenchyme on ventral surface of developing brain.
2. *Two maxillary processes* : Grow out from the upper end of each first arch.
3. *Two mandibular processes* : Grow from each first arch.

## 182. Woodruff's area is located at ?

a) Antero-inferior part of nasal septum

b) Posteroinferior part of nasal septum

c) Superior part of nasal septum

d) Posteroinferior part of lateral nasal wall

Correct Answer - D

- Posteriorly on the lateral nasal wall is the area known as Woodruff's area. It is situated under the posterior end of inferior turbinate.
- Sphenopalatine artery anastomoses with posterior pharyngeal artery, in this area.

### 183. Scutum is present in middle ear ?

a) Roof

b) Lateral wall

c) Medial wall

d) Floor

Correct Answer - B  
Lateral wall

## 184. Ovarian fossa is formed by all except?

a) Obliterated umbilical artery

b) Internal iliac artery

c) Ureter

d) Round ligament of ovary

Correct Answer - D

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

.. *Anteriorly:* Obliterated umbilical artery

?.. *Posteriorly:* Ureter and internal iliac artery

## 185. Appendices epiploicae is a feature of ?

a) Duodenum

b) Stomach

c) Colon

d) Jejunum

Correct Answer - C

### **Characteristic features of large intestine**

- i) 3 longitudinal bands, formed by longitudinal muscle coat, called Taeniae coli.
- ii) Sacculation or haustration
- iii) Fat filled peritoneal pouches called appendices epiploicae. These are not found in appendix, caecum, and rectum.
- iv) Greater part is fixed except for appendix, transverse colon and sigmoid colon.
- v) Peyer's patches (present in small intestine) are not present.

## 186. Nerve entering the inguinal canal through deep inguinal ring ?

a) Ilioinguinal nerve

b) Pudendal nerve

c) Genital branch of genitofemoral

d) Superior rectal nerve

Correct Answer - C

The spermatic cord in males and round ligament of uterus in females, enter the inguinal canal through the deep inguinal ring and pass out through superficial inguinal ring.

Thus constituents of spermatic cord are also components of inguinal canal; these are ductus deferens (vas deferens), testicular artery, cremasteric artery, artery to ductus deference, pampiniform plexus, lymphatics, sympathetic plexus, *genital branch of genitofemoral nerve*, remains of process vaginalis.

Note: Ili oiguinal nerve enters inguinal canal through interval between external and internal oblique muscles (not through deep inguinal ring).

**187. How many lactiferous ducts open in nipple ?**

a) 0 -10

b) 15 -20

c) 25 -50

d) 50 -75

Correct Answer - B

The nipple is pierced by 15-20 lactiferous ducts.

## 188. Optic cup give rise to ?

a) Lens

b) Retina

c) Cornea

d) Sclera

Correct Answer - B  
Retina

**189.**

## 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 : ?

- Bony labyrinth :- Cochlea, Vestibule, Semicircular canals.
- Membranous labyrinth :- Cochlear duct, utricle, Saccules, three semicircular ducts, and endolymphatic duct & sac.

## 190. Lymphatic drainage of thyroid gland is mainly ?

a) Sublingual nodes

b) Submandibular nodes

c) Deep cervical nodes

d) Submental nodes

Correct Answer - C

### **Lymphatic drainage of thyroid**

- Lymph from the upper part of the gland reaches the upper deep cervical lymph nodes either directly or through the prelaryngeal nodes.
- Lymph from the lower part of the gland drains to the lower deep cervical nodes directly, and also through the pretracheal and paratracheal nodes.

## 191. Hunter's canal is seen in?

a) Cubital fossa

b) Popliteal fossa

c) Thigh

d) Calf

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

## 192. Organ of corti is situated in ?

a) Basilar membrane

b) Utricle

c) Sacculle

d) None of the above

Correct Answer - A

**Scala media (cochlear duct or membranous labyrinth) has 3 walls : -**

- The basilar membrane, which supports the organ of corti.
- The Reissner's membrane which separates it from the scala vestibuli.
- The stria vascularis which contains vascular epithelium and is concerned with secretion of endolymph.

### 193. Initially, renal arteries are branches of ?

a) Internal pudendal artery

b) External iliac artery

c) Common iliac artery

d) Aorta

Correct Answer - C

**Due to ascent of kidneys during development, the blood supply of kidney changes:?**

- 1) Initially when the kidneys are in pelvis, the renal arteries are branches of common iliac arteries.
- 2) With progressive ascent, the arteries to kidneys are derived from different levels of aorta.

## 194. In a neonate, kidney is supplied by?

a) Internal pudendal artery

b) External iliac artery

c) Common iliac artery

d) Aorta

Correct Answer - D

- Upto 5<sup>th</sup> week of intrauterine life, kidney is in lumbar region and renal arteries are branches of common iliac artery (see above explanation).
- After that, differential growth of abdominal wall causes the kidney to ascent to lumbar region. Adult position (lumbar region of abdomen) is attained by 9<sup>th</sup> week. During progressive ascent, the arteries to kidney are derived from different levels of aorta.
- After full ascent, definitive renal artery is branch of aorta at 2<sup>nd</sup> lumbar segment.
- *Thus, neonatal kidney is supplied by aorta.*

## 195. Hassall's corpuscles are found in?

a) Lymph nodes

b) Spleen

c) Liver

d) Thymus

Correct Answer - D

The dominant feature of medulla of thymus is its epithelial components, which are onion like structures called Hassall's Corpuscles, which have an intensely eosinophilic core of dead material,

**196. Bronchopulmonary segments in right and left lungs respectively ?**

a) 9, 11

b) 11,9

c) 10,10

d) 8, 10

Correct Answer - C

- Each lung has 10 bronchopulmonary segments.

## 197. Vidian nerve is formed by union of?

a) Superficial petrosal nerve and deep petrosal nerve

b) Greater petrosal nerve and superficial petrosal nerve

c) Greater petrosal nerve and deep petrosal nerve

d) Greater petrosal nerve and external petrosal nerve

Correct Answer - C

Greater petrosal nerve unites with deep petrosal nerve to form nerve to pterygoid canal (also called vidian nerve).

## 198. Structure related to deltopectoral groove ?

a) Axillary artery

b) Cephalic vein

c) Baselic vein

d) Radial nerve

Correct Answer - B

Ans. is b' i.e., Cephalic vein

Deltopectoral groove is a groove between *deltoid muscle* and *pectoralis major muscle*.

It is traversed by cephalic vein

**199. 3<sup>rd</sup> and 4<sup>th</sup> lumbrical (lateral two lumbricals) of foot are supplied by ?**

a) Medial plantar nerve

b) Lateral plantar nerve

c) Peroneal nerve

d) None of the above

Correct Answer - B

Behind the medial malleolus, beneath the flexor retinaculum the tibial nerve divides into its two terminal branches :

*i) Medial plantar nerve :- It corresponds approximately to the median nerve in the hand as far as skin and muscle supplies are concerned. It supplies medial part of sole, plantar surface of medial 3<sup>rd</sup> A digits, and innervates flexor digitorum brevis, abductor hallucis, flexor hallucis brevis and the first lumbrical.*

*ii) Lateral plantar nerve :- It corresponds approximately to the ulnar nerve. It supplies the lateral part of sole, plantar surface of lateral digits and innervates flexor digitorum accesorius, abductor digiti minimi, flexor digiti minimi brevis, adductor hallucis, all intercrossei and 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> lumbricals.*

**200. Which of the following is a derivative of paramesonephric duct in males ?**

a) Trigone of bladder

b) Paraphoron

c) Prostatic utricle

d) Gartner's duct

Correct Answer - C

**Two structures are derived from paramesonephric duct in males :-**

- .. Appendix of testis (hydatid of morgagni)
- ?. Prostatic utricle.

## 201. Floor of 4<sup>th</sup> ventricle has ?

a) Infundibulum

b) Vagal triangle

c) Mammillary body

d) Tuber cinerium

Correct Answer - B

### **Floor of 4<sup>th</sup> ventricle (Rhomboid fossa)**

- It is *diamond or rhomboidal* shaped and is formed by posterior surface of pons (upper triangular part or pontine part) and dorsal surface of medulla (lower triangular part or medullary part) junction of pons and medulla forms intermediate part. Features of 4<sup>th</sup> ventricle are :?
  - i. Median sulcus (a midline groove) divides the floor into two symmetrical halves.
  - i. Medial eminence is present on each side of median sulcus. It presents *facial colliculus* formed by genu (recurving fibers) of facial nerve looping around abducent nucleus. Facial colliculus lies in pons (i.e. in pontine part of floor).
  - i. Hypoglossal triangle overlying hypoglossal nucleus and vagal triangle overlying dorsal nucleus of vagus. Both of these triangles lie in the medulla (medullary part of floor).
  - r. Vestibular area overlies *vestibular nuclei*, partly in pons and partly in medulla.
  - r. Sulcus coeruleus, a bluish area due to presence of pigmented neurons containing *substantia ferruginea*.
  - i. *Superior and inferior fovea*.

## 202. Breast is a ?

a) Endocrine gland

b) Modified sweat gland

c) Modified sebaceous gland

d) Holocrine gland

Correct Answer - B

Breast is a modified sweat gland. It is apocrine type of sweat gland.

## 203. Nerve which loops around submandibular duct?

a) Mandibular nerve

b) Lingual nerve

c) Hypoglossal nerve

d) Recurrent laryngeal nerve

Correct Answer - B

### **Submandibular duct**

- It is 5 cm long duct and runs forwards on hyoglossus, between lingual and hypoglossal nerves.
- At the anterior border of the hyoglossus muscle it is crossed by lingual nerve which loops around it.
- It opens into the floor of mouth, on the summit of the sublingual papilla at the side of frenulum of tongue.

**204. At the level of Arch of aorta, the relationship of left vagus nerve and left phrenic nerve?**

a) Phrenic nerve anterior, vagus nerve posterior

b) Phrenic nerve posterior, vagus nerve anterior

c) Both in same plane anteroposteriorly

d) Variable in relationship

Correct Answer - A  
Phrenic nerve anterior, vagus nerve posterior

**205. Pharyngeal muscles are derived from which pharyngeal arch ?**

a) 1<sup>st</sup>

b) 2<sup>nd</sup>

c) 3<sup>rd</sup>

d) 5<sup>th</sup>

Correct Answer - C  
3rd

## 206. Styloid process is derived from ?

a) 1<sup>st</sup> arch

b) 2<sup>nd</sup> arch

c) 3<sup>rd</sup> arch

d) 4<sup>th</sup> arch

Correct Answer - B

Styloid process is derived from 2<sup>nd</sup> pharyngeal arch.

## 207. Common interosseous artery is a branch of -

a) Brachial artery

b) Radial artery

c) Ulnar artery

d) Profunda branchii artery

Correct Answer - C

### Branches of ulnar artery

A) In cubital fossa

1) *Anterior ulnar recurrent* :- Anastomoses with inferior ulnar collateral in front of medial epicondyle.

2) *Posterior ulnar recurrent* :- Anastomoses with superior ulnar collateral behind medial epicondyle.

3) *Common interosseous* :- Divides into

i) *Anterior interosseous* : It is the deepest artery of front of forearm. It is accompanied by *anterior interosseous nerve* (a branch of median nerve). It pierces interosseous membrane at upper border of pronator quadratus to enter into extensor (dorsal) compartment. Its branches are : (a) *muscular branches* for deep muscles of front of forearm; (b) *nutrient artery* to radius and ulna; and (c) *median artery*.

ii) *Posterior interosseous* : Near its origin, it gives off interosseous recurrent artery which ends by anastomosing with middle collateral artery.

B) In forearm

1) Palmar carpal branch

2) Dorsal carpal branch

C) In palm :- These are terminal branches.

i) *Deep branch* :- Completes the *deep palmar arch* on medial side

by joining the terminal part of radial artery.

ii) *Superficial branch* :- Forms the major part of superficial palmar arch.

## 208. Haller cells are seen in?

a) Roof of nose

b) Orbital floor

c) Lateral nasal wall

d) Maxillary sinus

Correct Answer - B

The Onodi and Haller cells are ethmoidal air cells.

Some air cells may invade the *orbital floor*. These are known as the *Haller' cells*.

The *Onodi cell* is usually regarded as the most posterior ethmoid cell that pneumatizes lateral and superior to the sphenoid sinus and is intimately associated with the *optic nerve*.

## 209. True about clavicle?

a) Endochondral ossification

b) Vertical

c) No medullary cavity

d) Rarely fractures

Correct Answer - C

- Ans:C.)No medullary cavity.

- **Peculiarities of Clavicle:**

- 1.It has no medullary cavity
2. It is the first bone to ossify in the fetus (5th-6th week)
3. It is the only long bone having 2 primary centers of ossification (others have only 1)
4. It is the only long bone that ossifies in membrane and not in cartilage
5. It is the only long bone lying horizontally
6. It is the most common fractured long bone in the body
7. It is subcutaneous throughout

## 210. Secondary ossification center for lower end of femur?

a) Present at birth

b) Appears at 6 months of age

c) Appears at 1 year of age

d) Appears at 5 years of age

Correct Answer - A

Secondary center of lower end of femur appears at 9<sup>th</sup> month of intrauterine life (present at birth).

### **Ossification of femur**

- The femur ossifies from one primary and four secondary centres. The primary centre for the shaft appears in the seventh week of intrauterine life. The secondary centres appear, one for the lower end at the end of the ninth month of intrauterine life, one for the head during the first six months of life, one for the greater trochanter during the fourth year, and one for the lesser trochanter during the twelfth year.
- There are three epiphyses at the upper end and one epiphysis at the lower end. The upper epiphyses; lesser trochanter, greater trochanter and head, in that order, fuse with the shaft at about eighteen years. The lower epiphysis fuses by the twentieth year.

**211. All are branches of lumbar plexus  
except?**

a) Iliohypogastric nerve

b) Ilioinguinal nerve

c) Obturator nerve

d) Subcostal nerve

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

## 212. External oblique forms all except?

a) Lacunar ligament

b) Pectineal ligament

c) Conjoint tendon

d) Inguinal ligament

Correct Answer - C

- Inguinal ligament (Poupart's ligament) is the folded lower border of external oblique aponeurosis
- Lacunar ligament (Gimbernats ligament) is the crescent shaped expansion from the medial end of inguinal ligament attached to pectineal line of pubis.
- Pectineal ligament (Cooper's ligament) is strong fibrous band extending laterally from the lacunar ligament along pectineal line of pubis. Similar to lacunar ligament, it is made of external oblique aponeurosis.
- Reflected part of inguinal ligament extends from the lateral crus of superficial inguinal ring formed by inguinal ligament upwards to linea alba. It forms the posterior wall of inguinal canal.
- Conjoint tendon (falx inguinalis) is formed by the aponeuroses of internal oblique and transversus abdominis muscle and is attached to pubic crest.

## 213. Posterior to transverse pericardial sinus?

a) Aorta

b) Pulmonary trunk

c) SVC

d) Left atrium

Correct Answer - C

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

- Transverse sinus is a short passage that lies between the reflection of serous pericardium (epicardium) around arterial (aorta and pulmonary trunk) and venous ends of the heart tube.
- Transverse sinus is bounded anteriorly by ascending aorta and pulmonary trunk, *posteriorly by SVC, and inferiorly by left atrium.*

## 214. Medulla is supplied by all except?

a) Basilar artery

b) Anterior spinal artery

c) Vertebral artery

d) Posterior cerebral artery

Correct Answer - D  
Posterior cerebral artery

**215. Articular surface of the sarum extends upto how many vertebrae in males ?**

a) 1 to 1<sup>1/2</sup>

b) 2 to 2<sup>1/2</sup>

c) 3 to 3<sup>1/2</sup>

d) 4 to 4<sup>1/2</sup>

Correct Answer - C

*Articular surface of sacrum: the rough articular surface on the lateral aspects of the sacrum that articulates with the ilium on each side.*

**216. Lower limit of sacro iliac joint lies upto which level in females ?**

a) 1 to 1 <sup>1/2</sup>

b) 2 to 2 <sup>1/2</sup>

c) 3 to 3 <sup>1/2</sup>

d) 4 to 4 <sup>1/2</sup>

Correct Answer - B  
, 2 to 2 <sup>1/2</sup>

## 217. Fibrin is degraded by ?

a) Thrombin

b) Fibrin

c) Plasmin

d) None

Correct Answer - C

- Coagulation must be balanced with fibrinolysis to limit the hemostatic plug to the site of injury.
- Injured vascular endothelium secret *plasminogen activator* that converts inactive plasminogen to active plasmin.
- *Plasmin breaks down fibrin* resulting in production of fibrin *degradation products*.
- Fibrinolytic system is regulated by plasminogen activator inhibitors (PAIs) that are secreted by endothelium.

## 218. Which is not an extrapyramidal tract ?

a) Reticulospinal tract

b) Rubrospinal tract

c) Corticospinal tract

d) Tectospinal tract

Correct Answer - C

Ans. is 'c' i.e., Corticospinal tract

## 219. Sensory perception involves Brodmann's area ?

a) 3, 1, 2

b) 4, 6

c) 44, 45

d) 41, 42

Correct Answer - A

Ans.A. 3,1,2

Processing of general sensory inputs primarily occurs in primary somatosensory area of parietal lobe.

Primary somatosensory area is Brodmann's area 3, 1, 2.

## 220. Gastric acid secretion is stimulated by all except-

a) Gastric distension

b) Gastrin

c) Smell of food

d) Somatostatin

Correct Answer - D

### **There are following phases of gastric acid secretion : ?**

1. The cephalic phase :- Just as salivary secretion may start before food enters the mouth, gastric secretion is also initiated before food enters the stomach. Sight, smell or even thought of food stimulate gastric acid secretion. It is by parasympathetic system through vagus. This phase accounts for 20% of acid secretion.
2. The gastric phase :- This phase of acid secretion comes into play when food makes contact with the gastric mucosa. Acid secretion in this phase is brought about two factors :- (i) Hormonal stimulation due to gastrin release and (ii) Stretch of stomach wall due to gastric distension *which activates a vago-vagal reflex as well as a local intragastric reflex*. This phase accounts for 72-80% of acid secretion.
3. The intestinal phase :- Once the food enters upper portion of small intestine (i.e., duodenum) it causes small amounts of gastric juice secretion because of *gastrin released from duodenal mucosa*. While the intestinal phase play only a minor role in stimulation of gastric secretion, presence of food in the intestine plays a major role in its inhibition. With the entry of food into the duodenum, gastric secretion starts slowing down. *The presence of acid, fats, and products of protein digestion; and increased osmolarity in the duodenum inhibit gastric secretion by :- (i) Hormonal mechanism : These mentioned*

stimuli cause the release of several *intestinal hormones like secretin, cholecystokinin (CCK), vasoactive intestinal peptide (VIP), gastric inhibitor polypeptide (GIP) and somatostatin*. These local hormones inhibit the gastric secretion as well as gastric motility. (ii) Neural mechanism (enterogastric reflex) : The above mentioned stimuli inhibit gastric secretion and motility by intrinsic neural reflex.

## 221. Hangman's fracture is the fracture involving which cervical vertebra?

a) C1

b) C2

c) C3

d) C4

Correct Answer - B

Ans. is 'b' i.e., C2

Hangman's fracture is a bilateral fracture of the pars interarticularis of the axis (C2) with a traumatic spondylolisthesis of axis (C2) over the C3 vertebrae. Thus Hangman's fracture is not simply a fracture, but fracture-dislocation of the axis (C2).

The mechanism of injury is an *extension with distraction* (in true, judicial hangman's fracture) and *hyper-extension, axial compression & flexion* (in civilian injuries, which are now more common).

It is the *second most common type of Axis (C<sub>2</sub>) fracture*, second only to odontoid fractures.

Fatalities are common, However, neurological deficit is unusual as the fracture of the posterior arch decompresses the spinal cord.

Most of the fatalities occur at the scene of injury, acute post-admission mortality is low.

*Successful healing of C<sub>2</sub> traumatic spondylolisthesis is reported to approach 95%.* This is most commonly achieved with non-operative measures, even in the presence of displacement of pars inter-articularis.

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

a) Great cardiac vein

b) Anterior cardiac vein

c) Thebasian vein

d) Venae cordis minimi

Correct Answer - A

**Ans. (A) Great cardiac vein**

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

**Veinous drainage of heart**

Coronary sinus : Opens into right atrium and has following tributaries : (i) Great cardiac vein, (ii) Middle cardiac vein, (iii) Posterior vein of left ventricle, (iv) Small cardiac vein, (v) Oblique vein of left atrium and (vi) Sometimes right marginal vein.

Anterior cardiac vein : Opens into right atrium.

Venae cordis minimi (thebasian veins) : All these are extremely small veins in the walls of all the 4 [chambers of the heart](#). They open directly into the respective chambers. They're most numerous in the right atrium.

Right marginal vein : More often opens into right atrium but sometimes into coronary sinus.

## 223. Gastrosplenic ligament contains ?

a) Splenic vessels

b) Tail of pancreas

c) Short gastric artery

d) Portal vein

Correct Answer - C  
Short gastric artery

## 224. Where is the Cave of Retzius present?

a) Between urinary bladder and rectum

b) Between urinary bladder and cervix

c) In front of the bladder

d) Between the cervix and the rectum

Correct Answer - C

Space of Retzius is a horse-shoe shaped potential space which *intervenes between the antero-lateral pelvic wall and the sides of the bladder and prostate.*

## 225. Incudomalleolar joint is a ?

a) Ellipsoid joint

b) Pivot joint

c) Hinge joint

d) Saddle joint

Correct Answer - D

**Synovial joints are classified as follows :**

- 1) Plane synovial joints (flat joints)
- 2) Hinge joints (Ginglymus joints or ginglymi)
- 3) Pivot or trochoid joints
- 4) Condylar (bicondylar) joints
- 5) Ellipsoid joints

Note : Metacarpophalangeal joints are ellipsoid joints functionally, but structurally they belong to condylar joints.

6) Saddle (sellar) joints

- The articular surfaces are reciprocally saddle shaped, i.e. concavo-convex. Examples are first (thumb) *carpometacarpal joint*, *sternoclavicular joint*, *calcaneocuboid joint*, *incudomalleolar joint* (*smallest saddle joint*) and *patellofemoral joint*.
- 7) Ball and socket (spheroidal) joints

## 226. Right border of heart is formed by ?

a) Right ventricle

b) Right atrium

c) SVC

d) IVC

Correct Answer - B

**Ans. (B) Right atrium**

**External features of heart**

**The heart has following borders and surfaces :-**

**A) Borders**

- Right border :- Formed by right atrium.
- Left border (obtuse margin):- Formed mainly by left ventricle and partly by left auricle (in its upper most part).
- Inferior border (acute margin):- Formed mainly by right ventricle and partly by left ventricle near apex.
- Upper border :- Mainly by left atrium and partly by right atrium where SVC enters.
- Apex :- Formed by left ventricle.

**B) Surfaces**

- Anterior (sternocostal) surface :- Formed mostly by right ventricle (major) and right auricle and partly by left ventricle and left auricle.
- Inferior (diaphragmatic) surface :- It is formed by left ventricle (left 2/3) and right ventricle (right 1/3). It is traversed by posterior interventricular groove (PIV) containing PIV branch of RCA.

## 227. Which leaves the pelvis ?

a) Piriformis

b) Sciatic nerve

c) Superior gluteal vessel

d) Inferior gluteal vessel

Correct Answer - B

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

## 228. Structure developing from Mullerian duct in males?

a) Seminal vesicle

b) Epididymis

c) Prostatic utricle

d) Ureter

Correct Answer - C

**Ans. (C) Prostatic utricle**

**Remnants of Mullerian duct (paramesonephric duct) in males are:-**

- Appendix of testis (Hydatid of Morgagni)
- Prostatic utricle.

## 229. Tributary of coronary sinus ?

a) Anterior cardiac vein

b) Thebesian vein

c) Smallest cardiac vein

d) Great cardiac vein

Correct Answer - D

**Ans. (D) Great cardiac vein**

**Coronary sinus**

- It opens *in* the posterior wall of right atrium, in the posterior part of *coronary sulcus*.
  - It opens in the right atrium between IVC and tricuspid orifices.
  - Coronary sinus is guarded by **Thebesian valve** (Thebesian valve (incomplete semilunar valve) guards the orifice of coronary sinus.)
- Tributaries of coronary sinus are :**
- *Great cardiac vein* :- Lies in the anterior interventricular groove. *Left marginal vein* drains into it.
  - *Middle cardiac vein* :- Lies in the posterior interventricular groove.
  - *Posterior vein of left ventricle*.
  - *Small cardiac vein* :- It lies in the *posterior part of coronary sulcus with RCA*. *Right marginal vein* may sometimes open into *small cardiac vein*, more often, however, *right marginal vein* opens directly into *right atrium*.
  - *Oblique vein of left atrium (vein of Marshall)* :- It is continuous above with ligament of IVC. These two structures are embryological remnants of left common cardinal vein (duct of Cuvier).

## 230. Wrist drop is due to injury to ?

a) Radial nerve

b) Ulnar nerve

c) Median nerve

d) Posterior interosseous nerve

Correct Answer - A

**Ans. (A) Radial nerve**

**Clinical features of radial nerve palsy**

- Clinical features depend upon the site of lesion.
  - 1) If lesion is high
    - Wrist drop, thumb drop and finger drop.
    - Inability to extend elbow, wrist, thumb & fingers (MP joint)
    - Patient can extend interphalangeal joints due to action of lumbricals and interossei.
    - Sensory loss over posterior surface of arm & forearm and lower lateral half of forearm.
  - 2) If lesion is low
    - a) Type I
      - Wrist drop, thumb drop and finger drop.
      - Elbow extension is preserved.
      - Sensory loss over the dorsum of first web space.
    - b) Type II
      - Thumb drop and finger drop
      - Elbow and wrist extension is preserved
      - Sensory loss over the dorsum of first web space.

**231. All are true about short saphenous vein except?**

a) Runs behind lateral malleolus

b) Runs on lateral side of leg

c) Accompanied by sural nerve

d) Achilles tendon is medial to vein

Correct Answer - B

Short saphenous vein runs in the back (posteriorly) of leg (not laterally).

It enters the back of leg by passing *behind the lateral malleolus* and is *accompanied by sural nerve*.

In leg it ascends lateral to tendocalcaneus (tendoachillis). Thus tendoachillis is medial to vein.

## 232. Nerve supply of cremastic muscle ?

a) Pudendal nerve

b) Femoral branch of genitofemoral

c) Genital branch of genitofemoral nerve

d) Ilioinguinal nerve

Correct Answer - C

Genital branch of genitofemoral nerve

Cremastic muscle is a muscle of scrotum. It is supplied by genital branch of genitofemoral nerve.

### 233. Trigone of bladder is derived from ?

a) Mesonephric duct

b) Paramesonephric duct

c) Absorbed anal membrane

d) Mullerian duct

Correct Answer - A  
Mesonephric duct

## 234. Bartholin gland situated in ?

a) Superficial perineal pouch

b) Deep perineal pouch

c) Inguinal canal

d) Ischioanal fossa

Correct Answer - A  
Superficial perineal pouch

## 235. Vasa Vasorum of ascending aorta arises from ?

a) Left coronary artery

b) Anterior interventricular artery

c) Posterior interventricular artery

d) Left atrium

Correct Answer - A

### **Clinical anatomy**

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

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

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

### **Vasa vasorum of descending aorta arise from':**

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

**236. Middle meningeal artery passes through ?**

a) Foramen ovale

b) Foramen lacerum

c) Foramen rotundum

d) Foramen spinosum

Correct Answer - D  
Foramen spinosum

## 237. Structure which lies outside the femoral sheath

a) Femoral artery

b) Femoral nerve

c) Femoral vein

d) Genitofemoral nerve

Correct Answer - B

Femoral nerve

### **Femoral sheath**

Femoral sheath is a funnel shaped fascial prolongation around proximal part of femoral vessels, situated in the femoral triangle, below the inguinal ligament. It is 3-4 cm long. It is formed by fascia iliaca.

Femoral sheath is divided into 3 separate fascial compartments by septa :?

- **Lateral compartment :-** It contains **femoral artery** and **femoral branch of genitofemoral nerve**.
- **Intermediate compartment :-** **Femoral vein**.
- **Medial compartment (femoral canal) :-** It is conical in shape, wider above and narrow below. The wider upper opening is known as **femoral ring**, which is potentially a weak point in lower abdomen and is the site for femoral hernia. Femoral ring is bounded : **Anteriorly by inguinal ligament, medially by lacunar ligament**, posteriorly by pectineus with its covering fascia, and **laterally by septum separating it from femoral vein**. **Femoral canal contains lymph node of Cloquet or Rosenmuller and lymphatics.**

## 238. Lateral border of ischioanal fossa is formed by?

a) Gluteus maximus

b) Perineal membrane

c) Pelvic diaphragm

d) Obturator internus

Correct Answer - D

**Ans. is 'd' i.e., Obturator internus**

**Boundries of ischioanal (ischioanal) fossa are :-**

- Anteriorly :- Posterior border of perineal membrane .
- Posteriorly :- Gluteus maximus muscle, sacrotuberous ligament.
- Laterally :- Ischial tuberosity and obturator internus.
- Medially :- Sphincter ani externus (external anal sphincter) and pelvic diaphragm (levator ani).

## 239. Superior gluteal nerve does not supply ?

a) Tensor fasciae latae

b) Gluteus medius

c) Gluteus minimus

d) Gluteus maximus

Correct Answer - D

**Ans. is 'd' i.e., Gluteus maximus**

**Nerve supplying muscles of gluteal region are :-**

- Inferior gluteal nerve : Gluteus maximus.
- Superior gluteal nerve : Gluteus medius and minimus.
- Nerve to piriformis : Piriformis
- Nerve to obturator internus : Obturator internus, Gemellus superior.
- Nerve to quadratus femoris : Quadratus femoris, Gemellus inferior.
- Tensor fascia latae is supplied by superior gluteal nerve.

**240. Muscle of Arm with additional supinator action?**

a) Brachialis

b) Biceps

c) Coracobrachialis

d) Triceps

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

## 241. Lymphatic drainage of ovary?

a) Deep inguinal

b) Superficial inguinal

c) Obturator

d) Paraaortic

Correct Answer - D

Ans. is 'd' i.e., Para-aortic

Lymphatics of the ovary drain to *para-aortic nodes* alongside the origin of the ovarian artery (L2).

**242.**

**Anal valve is found in which part of anal canal ?**

a) Upper

b) Middle

c) Lower

d) At anus

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

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

a) Latissimus dorsi

b) Teres major

c) Pectoralis major

d) Deltoid

Correct Answer - A

Ans. is 'a' i.e., Latissimus dorsi

The shaft of humerus is cylindrical in the upper half and triangular on cross-section in the lower half. The upper part has intertubercular sulcus (bicipital groove) anteriorly. Bicipital groove contains long head of biceps with its synovial sheath and an ascending branch of anterior circumflex humeral artery. Middle third of posterior surface of shaft of the humerus has a spiral groove (radial groove) which contains radial nerve and *profunda brachii* vessels.

### **Attachment to shafts are ?**

\* Insertions of pectoralis major (on lateral lip of bicipital groove), latissimus dorsi (on floor of bicipital groove), teres major (on deltoid tuberosity) and coracobrachialis (medially on mid shaft).

\* Origin of brachialis (anterior surface); Lateral and medial head of triceps (posterior surface); pronator teres (from medial supracondylar ridge); brachioradialis (from lateral supracondylar ridge) and ECRL (from lateral supracondylar ridge).

## 244. Ventral pancreatic duct give rise to ?

a) Body

b) Tail

c) Neck

d) Uncinate process

Correct Answer - D

**Ans. is 'd' i.e., Uncinate process**

### **Development of pancreas**

- Pancreas is developed from the two pancreatic buds.
- .. Dorsal pancreatic bud :- It is larger and most of the pancreas is derived from it i.e. most of the head, and whole neck, body & tail.
- 2. Ventral pancreatic bud :- It is smaller and forms lower part of the head of pancreas including uncinata process.
- During 7th week of development, the ventral and dorsal pancreatic buds fuse to form a single pancreatic mass.
- After the fusion of ventral and dorsal pancreatic buds, their ducts develop cross communications. Final duct system is formed as below ?
- .. Main pancreatic duct (Duct of wirsung) is formed by the duct of ventral bud, distal part of duct of dorsal bud and an oblique communication between the two. The main pancreatic duct join the bile duct to form hepatopancreatic ampulla that enters th 2nd part of duodenum at major duodenal papilla.
- 2. Accessory pancreatic duct is formed by the proximal part of the duct of dorsal bud. It opens into 2<sup>nd</sup> part of duodenum at minor duodenal papilla, 2 cm proximal (cranial) to major duodenal papilla.

### **Anomalies of pancreatic development may be:**

- .. Annular pancreas :- Two components of the ventral bud fail to fuse

and grow in opposite direction around the duodenum and meet the dorsal pancreatic duct.

2. Pancreatic divisum (divided pancreas) :- Ventral and dorsal buds fail to fuse with each other. It is the most common congenital anomaly of pancreas.
3. Inversion of pancreatic duct :- The main pancreatic duct is formed by the duct of dorsal bud, i.e. accessory duct is larger than the main duct and the main drainage of pancreas is through the minor duodenal papilla.
4. Accessory pancreatic tissue :- May be found in ?
  - Wall of stomach, duodenum, jejunum or ileum.
  - Meckel's diverticulum.

## 245. All are derived from neural crest except ?

a) Adrenal medulla

b) Pigment cell in skin

c) Corneal stroma

d) Retinal pigmented epithelium

Correct Answer - D

**Ans. is 'd' i.e., Retinal pigmented epithelium**

### **Derivatives of neuroectoderm**

1. From neural tube : CNS (brain, spinal cord), astrocytes, oligodendrocytes, ependymal cells, retina, pineal gland, neurohypophysis (posterior pituitary), all cranial and spinal motor nerves.
2. From neural crest : Neural crest derivatives are :?
3. Neural derivatives
  - \* Sensory neurons of 5th, 7th, 8th, 9th, 10th cranial nerve ganglia (trigeminal, geniculate, sphenopalatine, submandibular, cochlear, vestibular, otic and vagal parasympathetic ganglia).
  - \* Sensory neurons of spinal dorsal root ganglia.
  - \* Sympathetic chain ganglia and plexus (celiac/preaortic/renal ganglia, enteric plexus in GIT, i.e. Auerbach's and Meissner's)
  - \* Parasympathetic ganglia and plexus of GIT.
  - \* Schwann cells of peripheral nerves, satellite cells of all ganglia.
  - \* Adrenal medulla, chromaffin cells, para follicular C-cells of thyroid gland.
  - \* Melanocytes and melanoblasts.

**246. True about atrioventricular groove are all except ?**

a) Contains left anterior descending coronary artery

b) Also called coronary sulcus

c) Contains right coronary artery

d) Contains circumflex branch of left coronary artery

Correct Answer - A

**Ans. is 'a' i.e., Contains left anterior descending coronary artery**

**Grooves (sulci) of heart**

**A) Atrioventricular groove**

- Atria are separated by ventricles by atrioventricular Sulcus (atrioventricular groove, also called coronary sulcus).
- It is divided into anterior and posterior parts. The right half of anterior part is large and lodges right coronary artery. Left half of anterior part is small and lodges circumflex branch of left coronary artery.

**B) Interventricular grooves**

- Right and left ventricles are separated by interventricular grooves.
- Anterior interventricular groove is nearer to left margin of heart and contains anterior interventricular artery (also called left anterior descending artery).
- Posterior interventricular groove is situated on diaphragmatic (inferior) surface. It contains posterior interventricular artery (continuation of RCA).

## 247. Intercostal nerve is a branch of ?

- a) Brachial plexus
- b) Dorsal rami of thoracic spinal nerves
- c) Ventral rami of thoracic spinal nerves
- d) Ventral rami of cervical spinal nerves

Correct Answer - C

Ans. is 'c' i.e., Ventral rami of thoracic spinal nerves

Ventral rami of upper 11<sup>th</sup> thoracic spinal nerves are known as intercostal nerves and ventral ramus of T12 is known as subcostal nerve.

Upper six intercostal nerves supply thoracic wall whereas lower five intercostal nerves and subcostal nerve supply thoracic and anterior abdominal walls and hence known as *thoracoabdominal nerves*.

Upper two intercostal nerves also supply the upper limb.

Thus only 3<sup>rd</sup> to 6<sup>th</sup> are called typical intercostal nerves.

**248.**

## All are true about 1st part of duodenum, except ?

a) 5 cm long

b) Is superior part

c) Develops from foregut

d) Supplied by superior mesenteric artery

Correct Answer - D

Ans. is 'd' i.e., Supplied by superior mesenteric artery

### **Duodenum**

- Duodenum is 'C' shaped, shortest, widest and most fixed part of small intestine. It is 25 cm long. It is devoid of mesentery. *Most of the duodenum is retroperitoneal and fixed*, except at its two ends where it is suspended by folds of peritoneum, and is therefore mobile. Duodenum lies opposite L1, L2 and L3 vertebrae.
- Duodenum is C-shaped curve which encloses the head of pancreas and is subdivided into four parts :
  1. First part (Superior part) : It is 5 cm (2 inches) long. It begins at the pylorus and meet the second part at superior duodenal flexure. This part appears as duodenal cap on barium studies.
  2. Second part (Descending part) : It is about 7.5 cm (3 inches) long. It is vertical part which begins at superior duodenal flexure and meet the third part at inferior duodenal flexure. The interior of second part of duodenum shows following features :
    - i) *Major duodenal papilla* : It is present 8-10 cm distal to the pylorus. The hepatopancreatic ampulla or ampulla of Vater (joint part of bile duct and pancreatic duct) opens here.
    - ii) *Minor duodenal papilla* : It is present 6-8 cm distal to the pylorus. **Accessory pancreatic duct opens here.**

3. Third part (Horizontal part) : It is 10 cm (4 inches) long. It begins at inferior duodenal flexure and passes towards the left in front of IVC behind superior mesenteric vessels and root of mesentery to meet 4<sup>th</sup> part of duodenum.

- Fourth part : It is 2-5 cm (1 inches) long and runs upward immediately to the left of aorta. It ends at duodenojejunal flexure by joining the jejunum.

**Arterial supply**

- The part of duodenum before the opening of bile duct (major duodenal papilla) develops from foregut and therefore is supplied by *coeliac trunk* through superior pancreaticoduodenal artery, a branch of gastroduodenal artery, which in turn is a branch of common hepatic artery. Part of duodenum distal to opening of bile duct is developed from midgut and therefore is supplied by *superior mesenteric artery* through inferior pancreaticoduodenal artery. First part of duodenum receives additional supply from *right gastric artery*, *supraduodenal artery* (a branch of common hepatic artery), retroduodenal branch of gastroduodenal artery and right gastropiploic artery.

**249. Which of the following is a derivative of ventral mesogastrium ?**

a) Greater omentum

b) Gastrosplenic ligament

c) Linorenal ligament

d) Lesser omentum

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

## 250. Number of vertebrae is usually constant in

a) Cervical

b) Thoracic

c) Lumbar

d) Sacral

Correct Answer - A

Ans. a. Cervical Author please provide

\* Illustrated Encyclopedia of Human Anatomic Variation: Opus V: Skeletal Systems: Vertebral column; Numerical Variation in Vertebral Column by Ronald A. Bergman, PhD; Adel K. Afifi, MD, MS; Ryosuke Miyauchi, MD.

\* The usual grouping formula of 7 cervical, 12 thoracic, 5 lumbar, 5 sacral, and 4 coccygeal vertebrae is found in only about

\* The cervical region is reported to be the most constant<sup>Q</sup>, the coccygeal the most variable 20% of individuals studied.

\* The number of elements of the vertebral column has been reported to vary between 32 and 35. Addition to a group is frequently seen, which occurs through the reduction in number of vertebrae of an adjacent group, the total number being

\* The location of such a vertebra is predominately at the ends of the column and at the levels of transition between its regions. Thus, sacralization of the fifth lumbar, lumbar-like articular processes in the eleventh thoracic, and thoracic costal facets on the seventh cervical are observed.

\* unchanged. In this variation, the vertebra added is usually intermediate in form between the adjacent groups.

\* The levels of transition may be shifted cephalad, resulting in 23

mobile vertebrae, or shifted caudad, resulting in 25 presacral vertebrae. Such variations may occur in 2-11% of the population

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

**Number of vertebrae**

- \* Most constant: Cervical region°

- \* Most variable: coccygeal region°

**251. Which of the following structures seen in the cavernous sinus?**

a) Maxillary division of V nerve

b) Mandibular division of V nerve

c) Internal carotid artery

d) Facial nerve

Correct Answer - C

Ans. c. Internal carotid artery

Contents of the cavernous sinus

Structures in the lateral wall of the sinus

Oculomotor (III) nerve

Trochlear (IV) nerve

Ophthalmic (1st division of V) nerve

Trigeminal ganglion

Internal carotid artery

Abducent (VI) nerve

## 252. Valve of heister is seen in

a) Cystic duct

b) Common bile duct

c) Common hepatic duct

d) Pancreatic duct

Correct Answer - A

Ans. is 'a' i.e., Cystic duct

- The mucous membrane of the cystic duct forms a series of 5-12 crescentic folds, arranged spirally to form the so called spiral valve of Heister. This is not a true valve.

### **Also know**

- Hartmanns pouch - dilated posteromedial wall of neck of gall bladder.
- Sphincter choledochus - always present - terminal part of bile duct
- Sphincter pancreaticus - usually present - terminal part of pancreatic duct
- Sphincter ampullae (of Oddi) - surrounds the hepatopancreatic ampulla

## 253. Eustachian tube opens in middle ear in ?

a) Floor

b) Anterior wall

c) Superior wall

d) Posterior wall

Correct Answer - B

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

- The middle ear is shaped like a cube.
- When seen in the coronal section, the cavity of the middle ear is biconcave.
- The boundaries of the middle ear are as follows :
  - 1. Roof or tegmental wall**
- Separates the middle ear from the middle cranial cavity.
- It is formed by a thin plate of bone called tegmen tympani.
  - 2. Floor or jugular wall**
- Formed by a thin plate of bone which separates the middle ear from the superior bulb of the internal jugular vein.
- The floor also presents the tympanic canaliculus which transmits the tympanic branch of the glossopharyngeal nerve.
  - 3. Anterior or carotid wall**
- The uppermost part bears the opening of the canal of the tensor tympani.
- The middle part has the opening of the auditory tube.
- The inferior part of the wall is formed by a thin plate of bone which forms the posterior wall of the carotid canal. This plate separates the middle ear from the internal carotid artery.
  - 4. Posterior or mastoid wall**
- Superiorly, is the aditus through which the epitympanic recess

communicates with the mastoid antrum.

- Below it is the fossa incudis which lodges the short process of the incus.
- Below it is the pyramid giving attachment to the tendon of stapedius.
- Vertical part of the facial canal for facial nerve
  5. Lateral or membranous wall
- Tympanic membrane alongwith the tympanic ring and sulcus.
  6. Medial or labrynthine wall
- Promontory - rounded bulge produced by the first turn of the cochlea.
- Oval window - it is posterosuperior to the promontory. It is closed by the footplate of the stapes.
- Horizontal part of the facial canal - runs just above the oval window.
- Round window - posteroinferior to the promontory. It is closed by the secondary tympanic membrane.
- Processus cochleariformis - forms a pulley for the tendon of the tensor tympani.
- Prominence of the lateral semicircular canal - above the facial canal.

**254.**

**Which of the following is related to mediastinal part of right lung ?**

a) Arch of aorta

b) SVC

c) Pulmonary trunk

d) Left ventricle

Correct Answer - B  
Ans. is "b." i.e., SVC

## 255. Esophagus is present in all except ?

a) Superior mediastinum

b) Middle mediastinum

c) Anterior mediastinum

d) Posterior mediastinum

Correct Answer - C

Ans. is 'c' i.e., Anterior mediastinum

- Esophagus mainly descends in superior and posterior mediastinum.
- Esophagus is usually not a content of middle mediastinum, but it forms posterior boundry of middle mediastinum (*BDC Vol.-1, 6<sup>th</sup> e p. 246*).
- Esophagus has no relation to anterior mediastinum. Thus, among the given options, best answer is anterior mediastinum.

## 256. Skeletal derivative of 2<sup>o</sup> pharyngeal arch

-

a) Malleus

b) Incus

c) Stapes

d) Maxilla

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

**257. Clavipectoral fascia is derived from which ligament ?**

a) Coracoacromial

b) Coracoclavicular

c) Costoclavicular

d) Costocoracoid

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

## 258. Nerve supply of larynx above level of vocal cord

a) Superior laryngeal

b) Recurrent laryngeal

c) Glossopharyngeal

d) External laryngeal

Correct Answer - A

Ans. is 'a' i.e., Superior laryngeal

### **Nerve supply of larynx**

- The main cranial nerve innervating the larynx is the vagus nerve via its branches; superior laryngeal nerve (SLN) and recurrent laryngeal nerve (RLN).
- Sensory supply of larynx
- Above the level of vocal cords, larynx is supplied by internal laryngeal nerve, a branch of superior laryngeal nerve.
- Below the vocal cord, larynx is supplied by recurrent laryngeal nerve.
- Motor supply of larynx
- All the intrinsic muscles of larynx are supplied by recurrent laryngeal nerve except for cricothyroid muscle.
- Cricothyroid is supplied by external laryngeal nerve, a branch of superior laryngeal nerve.

## 259. Root value of thoracodorsal nerve ?

a) C<sub>5</sub>,C<sub>6</sub>,C<sub>7</sub>

b) C<sub>8</sub>,T<sub>1</sub>

c) C<sub>6</sub>,C<sub>7</sub>,C<sub>8</sub>

d) T<sub>i</sub> T<sub>2</sub>

Correct Answer - C

**Ans. is 'c' i.e., C<sub>6</sub>C<sub>7</sub>C<sub>8</sub>**

### **Branches of brachial plexus**

- Branches of brachial plexus arises from different anatomical segments : -
  - 1. Branches of the roots**
    - Nerve to serratus anterior (long thoracic nerve) (C<sub>5</sub>, C<sub>6</sub>, C<sub>7</sub>).
    - Nerve to rhomboideus (dorsal scapular nerve) (C<sub>5</sub>).
  - 2. Branches of the trunks**
    - These arise only from the upper trunk which gives two branches. I. Suprascapular nerve (C<sub>5</sub>, C<sub>6</sub>)
    - Nerve to subclavius (C<sub>5</sub>, C<sub>6</sub>)
  - 3. Branches of the cords**
    - 1. Branches of lateral cord**
      - Lateral pectoral (C<sub>5</sub>-C<sub>7</sub>)
      - Musculocutaneous (C<sub>5</sub>-C<sub>7</sub>)
      - Lateral root of median (C<sub>5</sub>-C<sub>7</sub>)
    - 2. Branches of medial cord**
      - Medial pectoral (C<sub>8</sub>, T<sub>1</sub>)
      - Medial cutaneous nerve of arm (C<sub>8</sub>, T<sub>1</sub>)
      - Medial cutaneous nerve of forearm (C<sub>8</sub>, T<sub>1</sub>).

- Ulnar (C7, C8, T<sub>1</sub>). C7 fibres reach by a communicating branch from lateral root of median nerve.
- Medial root of median (C<sub>8</sub>, T<sub>1</sub>).

### **3. Branches of posterior cord**

- Upper subscapular (C<sub>5</sub>, C6)
- Nerve to latissimus dorsi (thoracodorsal) (C6, C7, C<sub>8</sub>)
- Lower subscapular (C<sub>5</sub>, C6)
- Axillary (circumflex) (C<sub>5</sub>, C6)
- Radial (C<sub>5</sub>-C<sub>8</sub>, T<sub>1</sub>)

## 260. Length of Posterior vaginal wall is

- a) Variable
- b) Same as anterior vaginal wall
- c) Less than anterior vaginal wall
- d) More than anterior vaginal wall

Correct Answer - D

Ans. is 'd' i.e., More than anterior vaginal wall

### **Vagina**

The vagina is a fibromuscular, canal forming the female copulatory organ.

It extends from vulva to uterus.

Mucous membrane is lined by nonkeratinized stratified squamous epithelium.

The anterior wall is about 8 cm long and the posterior wall is about 10 cm long.

The lumen is circular at the upper end because of the protrusion of the cervix into it.

Below the cervix, anterior and posterior walls are in contact.

The interior of the upper end of the vagina (or vaginal vault) is in the form of a circular groove that surrounds the protruding cervix.

The groove becomes progressively deeper from before backwards and is arbitrarily divided into four parts called the vaginal fornices :

Anterior fornix lies in front of the cervix and is *shallowest*.

Posterior fornix lies behind the cervix and is deepest.

Two lateral fornices lie one on each side of the cervix. Lateral fornix is related to the *transverse cervical ligament* of pelvic fascia in which are embedded a network of *vaginal vein* and *the ureter gets crossed by the uterine artery*.

## **Relations of vagina**

- Anterior wall
- Upper half is related to the base of the bladder.
- Lower half to the urethra.

### **Posterior wall**

- Upper one-fourth is separated from the rectum by the rectouterine pouch.
- Middle two-fourths are separated from the rectum by loose connective tissue.
- Lower one-fourths is separated from the anal canal by the perineal body and the muscles attached to it.

### **Lateral walls**

#### **One each side :**

- Upper one-third is related to the transverse cervical ligament of pelvic fascia in which are embedded a network of vaginal veins, and the ureter gets crossed by the uterine artery.
- Middle one-third is related the pubococcygeus part of the levator ani.
- Lower one-third pierces the perineal membrane, below which it is related to the bulb of the vestibule, the bulbospongiosus and the duct of greater vestibular gland of Bartholin.

### **Arterial supply**

- Vaginal branch of internal iliac (main supply)
- Cervicovaginal branch of uterine artery (in upper part).
- Middle rectal and internal pudendal arteries (in lower part).

## 261. Which lymph nodes drain upper vagina & cervix?

a) Para aortic

b) External iliac

c) Superior inguinal

d) Deep inguinal

Correct Answer - B

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

- The lymphatics from the cervix drain into the external iliac, internal iliac and sacral nodes.
- Lymphatic Drainage of uterus:
- Fundus and upper body - aortic nodes and superficial inguinal nodes
- Lower body - external iliac nodes
- Cervix - external iliac, internal iliac and sacral nodes.
- Lymphatic drainage of Vagina:
- Upper 1/3 - external iliac nodes
- Middle 1/3 - internal iliac nodes
- Lower 1/3- superficial inguinal nodes

## 262. Posterior surface of heart is formed by -

a) RA

b) LA

c) LV

d) RV

Correct Answer - B

Ans. is 'b>a' i.e., LA>RA

### **Surfaces of the heart**

1. Anterior (sternocostal) surface :- Formed mostly by right ventricle (major) and right auricle and partly by left ventricle and left auricle.
2. Inferior (diaphragmatic) surface :- It is formed by left ventricle (left 2/3) and right ventricle (right 1/3). It is traversed by posterior interventricular groove (PIV) containing PIV branch of RCA.
3. Base (posterior surface) :- Formed mainly by left atrium and partly by right atrium. It is separated from T<sub>5</sub> to T<sub>10</sub>, vertebrae by pericardium, oblique pericardial sinus, esophagus and descending thoracic aorta.
4. Right surface :- Mainly by right atrium.
5. Left surface :- Mainly by left ventricle and partly by left auricle.

## 263. Largest branch of brachial plexus is

a) Ulnar

b) Medial

c) Radial

d) Axillary

Correct Answer - C

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

- Radial nerve is the largest branch of brachial plexus and is the continuation of posterior cord (root value C<sub>5\_8</sub> T1).

**264. Which muscle of larynx is not supplied by recurrent laryngeal nerve ?**

a) Vocalis

b) Thyroarytenoid

c) Cricothyroid

d) Interarytenoid

Correct Answer - C

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

- All intrinsic muscles are supplied by the recurrent laryngeal nerve except cricothyroid which is supplied by the external laryngeal nerve

**265. All are infraclavicular branches of brachial plexus except ?**

a) Ulnar nerve

b) Long thoracic nerve

c) Axillary nerve

d) Thoracodorsal nerve

Correct Answer - B

Ans. is `b' i.e., Long thoracic nerve

**266.**

**A surgeon removes a part of liver to left of falciparum ligament, which segment of liver is removed ?**

a) 1 & 4

b) 2 & 3

c) 1 & 4

d) 1 & 3

Correct Answer - B  
Ans. is 'b' i.e., 2 & 3

**267. Esophagus is present in which mediastinum ?**

a) Anterior

b) Posterior

c) Middle

d) None

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

## 268. Posterior to sternum is ?

a) Left atrium

b) Left ventricle

c) Right atrium

d) Right ventricle

Correct Answer - D

Ans. is 'd' i.e., Right ventricle

- Normally, most of the anterior portion of right ventricle is in contact with sternum.
- It is for this reason that sternal and parasternal injury commonly results in right ventricular injury.

## 269. Location of testis is higher on ?

a) Right side

b) Left side

c) May be on right or left side

d) Same level on both sides

Correct Answer - A

Ans. A

Right

Right testis is located at a higher position than left .

## 270. Distal end of humerus develops from how many centres ?

a) 2

b) 5

c) 3

d) 4

Correct Answer - D

Ans. is 'd' i.e., 4

**Part of humerus → Ossification**

**Shaft** → One primary center

**Upper end** Three secondary centers ?

1. One for head (appears in 1<sup>st</sup> year).
2. One for greater tubercle (appears in 2<sup>nd</sup> year).
3. One for lesser tubercle (appears in 5<sup>th</sup> year).
- This three centers fuses together during 6<sup>th</sup> year and finally with shaft during 20<sup>th</sup> year.

**Lower end Four secondary centers**

1. One for capitulum & lateral flange of trochlea (1<sup>st</sup> year).
2. One for medial flange of trochlea (9<sup>th</sup> year).
3. One for lateral epicondyle (12<sup>th</sup> year).
4. These three fuse during 14<sup>th</sup> year to form one epiphysis which fuses with shaft at 16 years.
5. One for medial epicondyle (4-6 years), which separately fuses with shaft during 20<sup>th</sup> year.

**271. Clavipectoral fascia is pierced by all except ?**

a) Lateral pectoral nerve

b) Median pectoral nerve

c) Thoracoacromial vessels

d) Cephalic vein

Correct Answer - B

Ans. is 'b' i.e., Median pectoral nerve

**Clavipectoral fascia is pierced by -**

- Thoraco-Acromial vessels.
- Lateral pectoral nerve.
- Lymphatics passing from breast and pectoral region to apical-axillary l.n.
- Cephalic vein.

## 272. Stomach is supplied by ?

a) Coeliac trunk

b) Splenic artery

c) Gastroduodenal artery

d) All of the above

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

## 273. Which muscle plays a role in winking

a) Levator labi superioris

b) Orbicularis oculi

c) Corrugator supercilli

d) Levator palpebrae

Correct Answer - B

Ans. is 'b' i.e., Orbicularis oculi

## 274. Muscle attached to lateral surface of greater trochanter -

a) Gluteus maximus

b) Gluteus medius

c) Gluteus minimus

d) Piriformis

Correct Answer - B

Ans. is 'b' i.e., Gluteus medius

### Attachments of greater trochanter (GT)

#### All are insertions

Part of GT	Muscle inserted
Apex (tip) of GT	Piriformis
Anterior surface (lateral part)	Gluteus minimus
Lateral surface	Gluteus medius
Medial surface	Obturator internus & two gemelli
Trochanteric fossa	Obturator externus

## 275. Support of prostate is ?

a) Pubococcygeus

b) Ischiococcygeus

c) Iliococcygeus

d) None of the above

Correct Answer - A

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

- Levator ani muscle is divisible into following parts :1) Pubococcygeus part
- Anterior fibers of this part closely surround the prostate, in males, to form, levator prostatae. In the female these fibres surround the vagina and form sphincter vaginae. In both cases these anterior fibres are inserted into the perineal body.
- Middle fibers constitute the puborectalis. They partly form a loop or sling around the anorectal junction; and are partly continuous with longitudinal muscle coat of the rectum.
- Posterior fibers are attached to anococcygeal ligament and tip of coccyx.
- Iliococcygeus part
- This is inserted to anococcygeal ligament and last two pieces of coccyx.
- Ischiococcygeus part (or coccygeus)
- It forms posterior part of pelvic floor.

**276. Collagen found in hyaline cartilage is ?**

a) Type I

b) Type II

c) Type IV

d) Type v

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

## 277. Galen's anastomosis is between ?

a) Recurrent laryngeal nerve and external laryngeal nerve

b) Recurrent laryngeal nerve and internal laryngeal nerve

c) Internal laryngeal nerve and external laryngeal nerve

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Recurrent laryngeal nerve and internal laryngeal nerve

**There are two types of important anastomosis between laryngeal branches of vagus :?**

1. Galen anastomosis (Ramus anastomoticus or Ansa of Galen)
- This is an anastomosis between the *recurrent laryngeal nerve and internal laryngeal nerve (internal branch of superior laryngeal nerve)*.
  - Generally, posterior branch of recurrent laryngeal nerve contributes to the anastomosis; however, anterior branch can also contribute.
2. Human communicating nerve
- It is an anastomosis between *recurrent laryngeal nerve (distal part) and external laryngeal nerve (external branch of superior laryngeal nerve)*.

**278. Radial bursa is the synovial sheath covering the tendon of ?**

a) FDS

b) FDP

c) FPL

d) FCR

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

**279. Which muscle will be paralyzed when radial nerve is injured in just below the spiral groove ?**

a) Lateral head of triceps

b) Medial head of triceps

c) Long head of triceps

d) ECRL

Correct Answer - D

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

**Radial nerve injury**

- Radial nerve injury may be high or low.
  1. High radial nerve palsy
- Injury is before the spiral groove
- All muscles supplied by radial nerve are paralysed.
  2. Low radial nerve palsy
- Injury is after the spiral groove.
- Low radial nerve palsy may be of two types.

**Injury occurs between the spiral groove and elbow joint.**

**Muscles involvement is : ?**

- Elbow extensors (Triceps, anconeus) are spared.
  - Wrist, elbow and finger extensors are paralysed.
  - Sensory loss in first web space (on dorsal side)
- Injury occurs below the elbow joint.**
- Elbow extensors (triceps, anconeus) and wrist extensors (ECRL) are spared.
  - Finger extensors (extensor digitorum, extensor digiti minimi, extensor indicis) and thumb extensors (extensor pollicis longus &

brevis) are paralysed.

- Sensory loss in first web space ( on dorsal side).

**280. Which are segments of upper lobe of right lung ?**

a) Anterior, posterior, media

b) Lateral, medial, superior

c) Apical, anterior, posterior

d) Basal, medial, lateral

Correct Answer - C

Ans. is 'c' i.e., Apical, anterior, posterior

## 281. Centroacinar cells are present in ?

a) Pancreas

b) Parotid gland

c) Prostate

d) None

Correct Answer - A

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

### **Pancreas**

- It is a mixed exocrine and endocrine gland.
  - A . Exocrine part
- The exocrine portion is a *compound acinar gland*, consists of pancreatic *acini*.
- The acini of pancreas consist of a group of pyramid-shaped acinar cells' (pancreatic parenchymal cells) arranged around a small lumen.
- The centroacinar-cells are seen at the centre of acini where the duct system begins. These cells are an extension of the intercalated duct cells into the acinus. They add bicarbonate ions to pancreatic juice.
- Individual acini are drained by intercalated ducts (interlobular ducts), which drain into larger interlobular ducts, found in connective tissue septa.
  - B. Endocrine part
- Islets of Langerhans constitute the endocrine part and are scattered throughout the exocrine part, most abundantly in tail region.

**282.**

## Billorth's cord are present in which part of spleen?

a) White pulp

b) Red pulp

c) Both

d) Capsule

Correct Answer - B

Ans. is `b` i.e., Red pulp

### **Histology of spleen**

- Spleen has a capsule which is mainly composed of collagen with some elastin. Trabeculae are septae pass inwards from the capsule. Spleen is mainly composed of two parts :
  - .. White pulp : The white pulp of the spleen is formed of mass of T and B lymphocytes surrounding central artery, arranged as lymphoid nodule. Each nodule is also called Malpighian bodies. Marginal zone surrounds the white pulp and contains antigen presenting cells as macrophages.
  - ?. Red pulp : Red pulp is made up of a mesh of leaky sinusoids (vascular sinuses) through which the red cells are squeezed. Adjacent blood spaces contain blood cells and arranged in cords called splenic cords of billorth.

**283.**

## **B-cells are dispersed in which part of spleen?**

a) White pulp

b) Red pulp

c) Capsule

d) None

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

**284. Neurovascular bundle of anterior compartment of leg passes between the tendons of ?**

a) EHL and EDL

b) EDL and peroneus tertius

c) Tibialis anterior and EHL

d) None of the above

Correct Answer - A  
Ans. is 'a' i.e., EHL and EDL

## 285. True statement about great sphenous vein

a) It begins at lateral end of dorsal venous arch

b) It runs anterior to medial malleolus

c) It is accomponied by sural nerve

d) Terminates into popliteal vein

Correct Answer - B

Ans is 'b' i.e., It runs anteior to medial malleolus

**286. In arm ulnar nerve gives muscular branch to which muscle ?**

a) FCU

b) FDP

c) Both

d) None

Correct Answer - C

Ans. is 'C' i.e., both

Reference BDC 4th edition volume 1 , pg 157.

## 287. Vertebral arteries of both sides unite to form

a) Anterior spinal artery

b) Posterior spinal artery

c) Medullary artery

d) Basilar artery

Correct Answer - D

Ans. is 'd' i.e., Basilar artery

### **Vertebral Artery**

- It arises from 1st part of subclavian artery
- First Part : Origin to the foramen transversarium of C6 vertebra. It lies in the *scalenovertbral/vertebral triangle (triangle of vertebral artery) between scalemus anterior and longus colli muscles.*
- Second Part : This part passes through foramina transversaria of upper 6 cervical vertebrae (C<sub>6</sub> to C1).
- Third Part : It extends from foramen transversarium of C<sub>i</sub> to foramen magnum, lying in a groove on the upper surface of posterior arch of atlas. This part of *the artery lies in the suboccipital triangle.* It then enters the vertebral canal by passing deep to the lower arched margin of posterior atlanto-occipital membrane.
- Fourth Part : It lies in the posterior cranial fossa extending from the foramen magnum to the lower border of pons.
- In the vertebral canal, it pierces the dura and arachnid and ascends in front of hypoglossal nerve roots. At the lower border of pons both vertebral arteries unite to form the basilar artery.

### **Cervical branches**

- .. Spinal branches : Enter vertebral canal through intervertebral

foramina and supply cervical segments of spinal cord, meninges, and vertebrae.

- 2. Muscular branches : Supply suboccipital muscles.

**Cranial Branches :**

- .. Meningeal : Supply meninges of posterior cranial fossa
- 2. Posterior spinal
- 3. Anterior spinal
- l. Medullary
- 5. Posterior inferior cerebellar
- Basilar artery : A single median vessel formed by the union of the two vertebral arteries at the lower border of pons, runs upward in front of the pons, embedded in the groove, to bifurcate into two posterior cerebral arteries at the upper border of pons. Its branches are :
  - .. Labyrinthine
  - 2. anterior inferior cerebellar
  - 3. Pontine
  - l. Superior cerebellar
  - 5. Posterior cerebral

**288.**

## **Follicles are present in which part of lymph nodes ?**

a) Red pulp

b) White pulp

c) Cortex

d) Medulla

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

## 289. Remnant of notochord is ?

a) Annulus fibrosus

b) Nucleus pulposus

c) Ligament flavum

d) Intertransverse ligament

Correct Answer - B

Ans. is 'b' i.e., Nucleus pulposus

- Notochord is a bud like structure formed by epihlast cells extending from cranial end of primitive streak to caudal end of prochordal plate, in between the ectoderm and endoderm. Significances of notochord includes following :-
- It defines the axis of embryo.
- It functions as the primary inductor, inducing the overlying ectoderm to develop into neural plate (the primordium of CNS).
- It serves as the basis for development of axial skeleton. The notochord is an intricate structure around which vertebral column is formed and indicates future site of vertebral bodies. However, the notochord does not give rise to vertebral column, after development of vertebral bodies, the notochord degenerates and disappears, but parts of it persist as the nucleus pulposus of intervertebral disc.

**290. Structure passing deep to flexor retinaculum is ?**

a) Post tibial artery

b) Long saphenous vein

c) Tibialis ant. tendon

d) Peroneus tertius

Correct Answer - A  
Ans. is 'a' i.e., Post tibial artery

## 291. Which muscles is known as 'Triceps surae'

a) Gastro-soleus

b) Popliteus

c) EHL

d) EDL

Correct Answer - A

Ans. is 'a' i.e., Gastro-soleus

- Gastrocnemius and soleus together (gastro-soleus) are known as triceps surae.
- Soleus is known as peripheral heart helping in venous return from lower limb

## 292. All are true regarding axillary lymph nodes except?

a) Posterior group lies along subscapular vessels

b) Lateral group lies along lateral thoracic vessels

c) Apical group lies along axillary vessels

d) Apical group is terminal lymph nodes

Correct Answer - B

Ans. is 'b' i.e., Lateral group lies along lateral thoracic vessels

### **Axillary lymph nodes**

- The axillary lymph nodes are divided into 5 groups :?
  1. Anterior (pectoral) group :- Lie along lateral thoracic vessels, i.e. along the lateral border of pectoralis minor. They receive lymph from upper half of the anterior wall of trunk and from major part of breast.
  2. Posterior (scapular) group :- Lie along the Subscapular vessels. They receive lymph from the upper half of the posterior wall of trunk and axillary tail.
  3. Lateral group :- Lie along the upper part of the humerus, medial to the axillary vein. They receive lymph from upper limb.
  4. Central group :- Lie in the fat of the upper axilla. They receive lymph from the preceding groups and drain into apical group. The intercostobrachial nerve is closely related to them.
  5. Apical (infraclavicular) group :- Lie deep to the clavipectoral fascia along the axillary vessels. They receive lymph from central group, upper part of breast and the thumb and its web. These are called terminal group of lymph nodes, as they receive lymphatics from other nodes of breast.

## 293. Thoracic duct does not drains ?

a) Right upper part of body

b) Left upper part of body

c) Right lower part of body

d) Left lower part of body

Correct Answer - A

Ans. is 'a' i.e., Right upper part of body

### **Thoracic duct**

- Thoracic duct is also called as Pecquet duct.
- It is the *largest lymphatic duct* in body, about 45 cm (18 inches) long.
- It has a *beaded appearance* because of the presence of many valves in its lumen.
- Thoracic duct begins as a continuation of the upper end of the cisterna chyli near the lower border of **T12** vertebra and enters the thorax through the aortic opening of diaphragm (at T12).
- It then ascends through the posterior mediastinum and at **T<sub>5</sub>** level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck.
- At the level of **C<sub>7</sub>** vertebrae, arches towards left side to open into left brachiocephalic vein at the angle of union of left subclavian and left internal jugular veins.
- *Thoracic duct receives lymph from both halves of the body below the diaphragm and the left half above the diaphragm.*

### **Its tributaries are :-**

1. Right and left lumbar trunk.
2. In thorax :- Posterior mediastinal nodes, small intercostal lymph nodes.
3. In Neck :- Left jugular trunk, left subclavian trunk and left

bronchomediastinal trunk.

## 294. Not true about right bronchus

a) Shorter

b) Wider

c) More horizontal

d) In the line of trachea

Correct Answer - C

Ans. is 'c' i.e., More horizontal

- Trachea bifurcates at Carina (at lower border of T4 vertebra at T<sub>4</sub>-T<sub>5</sub> disc space) into *right and left principal (primary) bronchi*.
- Right principal bronchus is wider, shorter (2.5 cm long), and more vertical in the line of trachea (25° with median plane).
- Therefore a foreign body is most likely to lodge in the right bronchus.
- Right bronchus divides into epiarterial and hyparterial bronchi, passing respectively above and below the pulmonary artery, before entering the hilum.
- Left principal bronchus is narrower, longer (5 cm long) and more horizontal (45° with median plane).
- Left bronchus crosses in front of the esophagus producing a slight constriction.
- Inside the lung it divides into 2 lobar bronchi: upper and lower.

**295. All are true about mammary gland, except ?**

a) Is a modified sweat gland

b) Extends from 2<sup>nd</sup> to 6<sup>th</sup> rib vertically

c) Supplied by internal mammary artery

d) Nipple is supplied by 6<sup>th</sup> intercostal nerve

Correct Answer - D

**Ans. is 'd' i.e., Nipple is supplied by 6<sup>th</sup> intercostal nerve**

**Mammary gland**

- Breast (mammary gland) is a *modified sweat gland* present in the superficial fascia of pectoral region.
- Vertically it extend from 2nd to 6th ribs at midclavicular line and horizontal extent is from sternal margin to midaxillary line at the level of 4<sup>th</sup> rib

**Arterial supply of breast includes ?**

Perforating branches of internal mammary artery in II,III, IV intercostal spaces.

Thoracoacromial, lateral thoracic and superior thoracic branches of axillary.

Mammary branches, from 2nd, 3rd and 4th posterior intercostal arteries.

**Venous Drainage**

- There is an anastomotic circle of veins around the base of nipple-the circulus venosus of Haller.
- Veins from this and from the glandular tissue radiate to the circumference of the gland and drain into axillary, internal mammary and posterior intercostal veins.

**Nerve supply**

- Sensory and sympathetic innervation is via anterior and lateral cutaneous branches of 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> intercostal nerves.
- Nipple is mainly innervated by the 4<sup>th</sup> intercostal nerve.

**296. The nerve supply of nail bed of index finger is ?**

a) Superficial br of radial nerve

b) Deep br of radial nerve

c) Median nerve

d) Ulnar nerve

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

## 297. The blood supply to femoral head is mostly by ?

a) Lateral epiphyseal artery

b) Medial epiphyseal artery

c) Ligamentous teres artery

d) Profunda femoris

Correct Answer - D

Ans. is 'd' i.e., Profunda femoris

- Arterial supply of femoral head?
  1. Medial circumflex femoral artery (major supply).
  2. Lateral circumflex femoral artery.
  3. Obturator artery through artery of ligamentum teres.
  4. Intramedullary vessels in the femoral neck .
- Medial and lateral circumflex femoral arteries are branches of profunda *femoris* artery which in turn is a branch-of *femoral* artery.

**298. All pass through jugular foramen except**

a) Emissary vein

b) Vagus nerve

c) Mandibular nerve

d) Internal jugular vein

Correct Answer - C

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

## 299. Boundaries of anatomical snuff box are all except

a) APL

b) EPL

c) EPB

d) ECU

Correct Answer - D

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

### **Anatomical Snuffbox**

- Triangular depression on the dorsal and radial aspect of the hand become visible when thumb is fully extended. Boundaries
- Medial/Posterior → Tendon of the extensor pollicis longus.
- Lateral/Anterior → Tendon of the extensor pollicis brevis and abductor pollicis longus.
- Roof Skin and → fascia with beginning of cephalic vein and crossed by superficial branch of the radial nerve.
- Floor → Styloid process of radius, trapezium, scaphoid and base of 1st metacarpal.
- Contents → The radial artery.

### 300. Medial boundry of Cubital fossa ?

a) Brachioradialis

b) Pronator teres

c) Supinator

d) None

Correct Answer - B

Ans. *is* 'b' i.e., Pronator teres

### 301. Superficial perineal space contains ?

a) Sphincter urethrae muscle

b) Ischiocavernosus muscle

c) Deep transverse perinei muscle

d) Bulbourethral gland

Correct Answer - B

Ans. is 'b' i.e., Ischiocavernosus muscle

### 302. Caudate lobe of liver is ?

a) I

b) III

c) IV

d) VI

Correct Answer - A

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

The caudate lobe (posterior hepatic segment I, Spigelian lobe) is situated upon the postero-superior surface of the liver on the right lobe of the liver, opposite the tenth and eleventh thoracic vertebrae.

### 303. Spinal cord develops from ?

a) Neural tube

b) Mesencephalon

c) Rhombencephalon

d) Prosencephalon

Correct Answer - A

Ans. is 'a' i.e., Neural tube

- Nervous system develops from ectoderm (neuroectoderm). Nervous system develops from neural tube which in turn develops by process of neurulation, i.e. formation of neural plate and its infolding into neural tube. Structures formed from neural tube are :?
  1. From cranial part (enlarged cephalic part)
- Gives rise to brain. Developmental parts are :
  - Forebrain (prosencephalon)**
  - Telencephalon : Cerebral hemisphere and lateral ventricle.
  - Diencephalon : Optic cup and stalk (gives rise to retina), pituitary, thalamus, hypothalamus, epithalamus, pineal gland, and third ventricle.
  - Midbrain (mesencephalon)**
  - Cerebral aqueduct.
  - Hindbrain (rhombencephalon)**
  - Metencephalon : Cerebellum, pons
  - Myelencephalon : Medulla oblongata
- 2. From caudal part
- Gives rise to spinal cord.

### 304. Hyoid lies at the level of ?

a) C<sub>3</sub>

b) C<sub>4</sub>

c) C<sub>7</sub>

d) T<sub>2</sub>

Correct Answer - A

Ans. is 'a' i.e., C<sub>3</sub>

**Surface anatomy of larynx are :**

- C<sub>2</sub>, Level of body of hyoid and its greater cornu.
- C<sub>3</sub> -C<sub>4</sub>, Junction Level of upper border of thyroid cartilage and bifurcation of common carotid artery. C<sub>4</sub>- C<sub>5</sub>, Junction Level of thyroid cartilage.
- C<sub>6</sub> Level of cricoid cartilage.

**305. Which of the following muscle is not in the pectoral region ?**

a) Pectoralis major

b) Infraspinatus

c) Pectoralis minor

d) Subclavius

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

### 306. True about linea aspera ?

a) Forms lateral border of femur

b) Forms medial border of femur

c) Continues as gluteal tuberosity

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Continues as gluteal tuberosity

### 307. Hunterian perforators are seen in ?

a) Upper thigh

b) Lower thigh

c) Calf

d) Mid thigh

Correct Answer - D

Ans. is 'd' i.e., Mid thigh

Mid-thigh (Mid-hunter) - Adductor canal- Great saphenous with femoral

- Hunter perforator (Hunterian perforator or adductor canal perforator) is seen in mid thigh.

### 308. Internal spermatic fascia is derived from ?

a) External oblique muscle

b) Internal oblique muscle

c) Fascia transversalis

d) Colle's fascia

Correct Answer - C

Ans. is 'c' i.e., Fascia transversalis

#### **Layers of the scrotum**

- The scrotum is made up of the following layers from outside inwards.
  1. Skin, continuation of abdominal skin.
  2. Dartos muscle which replaces the superficial fascia. The dartos muscle is prolonged into a median vertical septum between the two halves of the scrotum.
  3. The external spermatic fascia from external oblique muscle.
  4. The cremasteric muscle and fascia from internal oblique muscle.
  5. The internal spermatic fascia from fascia transversalis

### 309. Portal vein supplies ?

a) Spleen

b) Liver

c) Pancreas

d) Colon

Correct Answer - B

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

- Portal vein is a vein, still it supply blood to liver (usually a vein drains blood from an organ or tissue).

**The liver has dual blood supply :-**

- 20% of blood supply is through the hepatic artery.
- 80% of blood supply is through the portal vein.

**310.**

## Collecting part of kidney develops from ?

a) Pronephrons

b) Mesonephros

c) Metanephros

d) Ureteric bud

Correct Answer - D

Ans. is 'd' i.e., Ureteric bud

### **Development of kidney**

- Kidneys develop from two sources :
- Metanephros (metanephric mesoderm or blastema) : It is the lowest part of nephrogenic cord which is derived from intermediate mesoderm. It forms the excretory unit of kidney i.e. glomerulus, proximal convoluted tubule, loop of henle and distal convoluted tubule.
- Ureteric bud : It arises from lower part of mesonephric duct. It forms collecting part of kidney (pelvis, major calyces, minor calyces, collecting tubules) and ureter.

### 311. Nerve running along with profunda brachii artery, in spiral groove ?

a) Ulnar

b) Median

c) Radial

d) None

Correct Answer - C

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

- Profunda brachii is a branch of brachial artery.
  - It accompanies radial nerve in spiral groove.
- Branches of profunda brachii artery are :?**
1. Deltoid branch (ascending branch) :- It anastomoses with the descending branch of posterior circumflex humeral artery.
  2. Nutrient artery to humerus:
  3. Muscular branches
  4. Posterior descending (middle collateral) :- It anastomoses with interosseous recurrent branch of ulnar artery.
  5. Anterior descending (radial collateral) :It anastomoses with radial recurrent branch of radial artery in front of lateral epicondyle.

**312. In which of the following vessels transverse mesocolon seen ?**

a) Right colic artery

b) Left colic artery

c) Middle colic artery

d) Iliocolic artery

Correct Answer - C

Ans. is 'c' i.e., Middle colic artery

Mesentery of gut

Vessels contained by mesentery

Mesentery proper (Mesentery of small intestine)

Jejunal and Ileal branches of superior mesenteric vessels

*Transverse mesocolon*

*Middle colic vessel*

Mesoappendix

Appendicular vessels

Sigmoid mesocolon

Sigmoid vessels

### 313. Main blood supply to the head and neck of femur comes from

a) Lateral circumflex femoral Artery

b) Medial circumflex femoral Artery

c) Artery of Ligamentum Teres

d) Popliteal Artery

Correct Answer - B

Ans. is 'b' i.e., Medial circumflex femoral Artery

- The medial circumflex femoral artery along with its retinacular and epiphyseal branches supplies most of the blood supply to the head and neck of femur.
- Arterial supply of femoral head has been explained in details in previous sessions.

### 314. Pubic symphysis is which type of joint ?

a) Gomphosis

b) Fibrous joint

c) Primary cartilaginous

d) Secondary cartilaginous

Correct Answer - D

Ans. is '**d**' i.e., Secondary cartilaginous

Pubic symphysis is a secondary cartilaginous joint (symphises or fibrocartilaginous joint).

### 315. which level the somites initially form ?

a) Thoracic level

b) Cervical level

c) Lumbar level

d) Sacral level

Correct Answer - B

Ans. is 'b' i.e., Cervical level

- The first pair of somites develop a short distance posterior to the cranial end of the notochord, and the rest of the somites from caudally.
- "By the 20" day, the first pair of somites have formed in neck region."  
Textbook of embryology
- Paraxial mesoderm differentiates into somites. By the end of 20th day, the first pair of somites have formed in neck region. After this, about 3 pairs of somites are formed per day and by the end of 5" week about 42-44 somite pairs are formed (4-occipital, 8-cervical, 12-thoracic, 5-lumbar, 5-sacral and 8-10 coccygeal). Somites are further differentiated into :-
- Dermatomyotome :- Give rise to skeletal muscles and dermis.
- Sclerotomes :- Give rise to vertebral column.

## 316. Double inferior vena cava is formed due to?

a) Persistence of sacrocardinal veins

b) Persistence of supracardinal veins

c) Persistence of subcardinal veins

d) Persistence of both supracardinal and subcardinal veins

Correct Answer - D

Ans. is 'd' i.e., Persistence of both supracardinal and subcardinal veins

### Developmental anomalies of veins

#### A. Anomalies of SVC

- Left superior vena cava is formed when left anterior cardinal and common cardinal veins persist and the right ones obliterate. Left SVC opens into right atrium through the coronary sinus.
- Double superior vena cava occurs due to persistence of left anterior cardinal vein. The right SVC opens directly into right atrium while left one opens through coronary sinus.

#### B. Anomalies of IVC

- Absence of inferior vena cava above renal veins occurs when the anastomotic channel between right subcardinal vein and right hepatocardinal channel fails to develop.
- Double inferior vena cava is formed below renal veins due to persistence of both the subcardinal and supracardinal veins below the kidney.
- Left inferior vena cava, i.e. infrarenal part of IVC is formed on left side instead of right.
- Preureteric IVC is formed when infrarenal part of IVC develops from subcardinal vein (which lies anterior to ureter) instead of

supracardinal vein (which lies posterior to ureter).

**317. All of the following muscles have dual nerve supply except ?**

a) Subscapularis

b) Pectoralis major

c) Pronator teres

d) Flexor digitorum profundus

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

**318. A person had injury to right upper limb he is not able to extend fingers but able to extend wrist and elbow. Nerve injured is ?**

a) Radial

b) Median

c) Ulnar

d) Posterior interosseus

Correct Answer - D

Ans. is 'd' i.e., Posterior interosseus

In posterior interosseus nerve injury, wrist extension is preserved due to spared ECRL, hence there is no wrist drop.

There is loss of extension of metacarpophalangeal joints, hence thumb and finger drop occurs. o In radial nerve injury, there is wrist drop.

**Clinical features of radial nerve palsy**

- Clinical features depend upon the site of lesion.
  1. If lesion is high
    - Wrist drop, thumb drop and finger drop.
    - Inability to extend elbow, wrist, thumb & fingers (MP joint)
    - Patient can extend interphalangeal joints due to action of lumbricals and interossei.
    - Sensory loss over posterior surface of arm & forearm and lower lateral half of forearm.

2. If lesion is low

**Type I**

- Wrist drop, thumb drop and finger drop.

- Elbow extension is preserved.
- Sensory loss over the dorsum of first web space.

### **Type H**

- Thumb drop and finger drop
- Elbow and wrist extension is preserved
- Sensory loss over the dorsum of first web space
- Clinical features of posterior interosseus nerve
- It is prone to be injured in injury & operations of radial head- neck .
- There is no sensory deficit as it is a pure motor nerve.
- Wrist extension is preserved (i.e. no wrist drop) due to spared extensor carpi radialis longus .
- Presents with loss of extension of metacarpophalangeal (MP) joints i.e., thumb & finger drop.

### 319. The retina is an out growth of the ?

a) Mesencephalon

b) Diencephalon

c) Telencephalon

d) Pons

Correct Answer - B

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

- Diencephalon forms - optic cup and stalk, pituitary, thalamus, hypothalamus, epithalamus, pineal gland (or epiphysis), and 3rd ventricle (most part).
- Retina develops from walls of optic cup. The outer thinner layer becomes retinal pigmented epithelium and inner thicker layer forms neural layer of retina.
- Forebrain (prosencephalon) consists of telencephalon (anterior or rostral part) and diencephalon (posterior or caudal part).

**320. All are contents of occipital triangle  
except ?**

a) Great auricular nerve

b) Suprascapular nerve

c) Lesser occipital nerve

d) Occipital artery

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

**321. Contents of midpalmar space are all except**

a) 2<sup>nd</sup> lumbrical

b) FDP of 3<sup>rd</sup> finger

c) 1st lumbrical

d) FDP of 4<sup>th</sup> finger

Correct Answer - C

Ans. is 'c' i.e., 1st lumbrical

Boundaries of midpalmar space are:

Anterior- Flexor tendons of 3<sup>rd</sup>, 4<sup>th</sup> , and 5<sup>th</sup> fingers

2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> lumbricals

Palmar aponeurosis

Posterior- Fascia covering interossei and metacarpals

Lateral - Intermediate palmar septum

Medial- Medial palmar septum

1st lumbrical is present in the thenar space

## 322. Axillary nerve is accompanied by which artery ?

a) Axillary

b) Subscapular

c) Anterior circumflex humeral

d) Posterior circumflex humeral

Correct Answer - D

**Ans. is 'd' i.e., Posterior circumflex humeral**

**Axillar nerve**

- Axillary nerve is a branch of the posterior cord of brachial plexus with root value C<sub>5</sub> and C<sub>6</sub>. It leaves the posterior wall of axilla along with the posterior circumflex humeral vessels through the quadrangular space. While passing through the quadrangular space it gives its first branch, an articular twig to the shoulder joint. Then it divides into?
  1. Anterior division :- Winds around the surgical neck of humerus to supply deltoid.
  2. Posterior division :- It gives of
    3. Branches to posterior part of deltoid.
    4. Nerve to teres minor which shows a pseudoganglion.
    5. Upper lateral cutaneous nerve of arm supplying the skin covering lower part of deltoid (regimental badge region).

**323. The roof of the olfactory region is formed by ?**

a) Nasal bone

b) Cribriform plate of ethmoid

c) Sphenoid

d) Temporal bone

Correct Answer - B

Ans. is 'b' i.e., Cribriform plate of ethmoid

- The olfactory mucosa lines the upper one-third of nasal cavity including the roof formed by cribriform plate and the medial and lateral walls up to the level of superior concha (turbinate).

**324. Superior pancreaticoduodenal artery is a branch of?**

a) Hepatic artery

b) Splenic artery

c) Gastroduodenal artery

d) Inferior mesenteric artery

Correct Answer - C

Ans. is 'c' i.e., Gastroduodenal artery

**Gastroduodenal artery gives following branches :-**

- .. Right gastroepiploic artery
- ?. Superior pancreaticoduodenal artery

### 325. Helicine artery are branch of ?

a) Deep artery of penis

b) Femoral artery

c) External pudental artery

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Deep artery of penis

- Helicine arteries of penis are five branches of cavernosal artery (deep artery of penis) that fill sinusoidal space of corpora cavernosa.
- Helicine arteries of uterus are extremely tortuous terminal branches of uterine artery supplying uterine muscle.

### 326. The superficial external pudendal artery is a branch of ?

a) Femoral artery

b) External iliac artery

c) Internal iliac artery

d) Aorta

Correct Answer - A

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

#### **Femoral artery**

- It is the main artery of the lower limb. It begins as a continuation of external iliac artery below the inguinal ligament at midinguinal point midway between pubic symphysis and anterior superior iliac spine. It descends through femoral triangle and then through adductor canal. After that it ends by passing through adductor hiatus in the adductor magnus muscle to continue as popliteal artery.
- Branches of femoral artery are :?
  - A. In femoral triangle
    1. Superficial branches :- (i) Superficial external pudendal, (ii) Superficial epigastric, (iii) Superficial circumflex iliac.
    2. Deep branches :- (i) Profunda femoris, (ii) Deep external pudendal, (iii) Muscular branches.
  - B. In adductor canal

#### **Descending genicular artery.**

- Profunda femoris artery is the largest branch of femoral artery and supplies all three compartments of thigh (anterior, medial and posterior). It arises from the lateral side of femoral artery about 4 cm below the inguinal ligament. The profunda femoris gives off following branches :

1. Medial circumflex femoral :- Major supply to the head of femur.
2. Lateral circumflex femoral.
3. Four perforating arteries :- 2<sup>nd</sup> perforating artery gives nutrient artery to femur.

**327. Nerve supply to the muscles of flexor compartment of arm ?**

a) Radial nerve

b) Median nerve

c) Musculocutaneous nerve

d) Ulnar nerve

Correct Answer - C

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

### 328. Tributaries of cavernous sinus are all except ?

a) Inferior cerebral vein

b) Central vein of retina

c) Sphenoparietal sinus

d) Superior cerebral vein

Correct Answer - D

Ans. is 'd' i.e., Superior cerebral vein

#### **Tributaries (incoming channels) of cavernous sinus**

1. Superior ophthalmic vein
2. A branch of inferior ophthalmic vein or sometimes vein itself
3. Central vein of retina (it may also drain into superior ophthalmic vein)
4. Superficial middle cerebral vein
5. Inferior cerebral vein
6. Sphenoparietal sinus
7. Frontal trunk of middle meningeal vein (it may also drain into pterygoid plexus or into sphenoparietal sinus)

#### **Draining channels (communications) of cavernous sinus**

1. Into transverse sinus through superior petrosal sinus
2. Into internal jugular vein through inferior petrosal sinus and through a plexus around the ICA
3. Into pterygoid plexus of veins through emissary veins
4. Into facial vein through superior ophthalmic vein
5. Right and left cavernous sinus communicates with each other by anterior and posterior intercavernous sinuses and through basilar plexus of veins

### 329. Line from midinguinal point to adductor tubercle represent ?

a) Inferior epigastric artery

b) Femoral artery

c) Superior epigastric artery

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Femoral artery

- Femoral artery enters the thigh behind the inguinal ligament at the mid-inguinal point. It is represented by the upper two-third of a line joining the mid-inguinal point to adductor tubercle.
- Femoral vein has same markings as femoral artery except that the upper point is taken 1 cm medial to mid-inguinal point and lower point 1 cm lateral to adductor tubercle.
- Inferior epigastric vessels is represented by the upper two-third of a line joining the mid-inguinal point to umbilicus.

### 330. Pineal gland forms ?

a) Floor of third ventricle

b) Anterior wall of third ventricle

c) Posterior wall of third ventricle

d) Roof of third ventricle

Correct Answer - C

Ans. is 'c' i.e., Posterior wall of third ventricle

**Boundries of third ventricle are :-**

1. Anterior wall : Lamina terminal, anterior commissure, anterior columns of fornix.
2. Posterior wall : Pineal body, posterior commissure, cerebral aqueduct.
3. Roof : Ependyma lining of under surface of tela choroidea of ventricle. The choroid plexus of third ventricle projects downwards from roof.
4. Floor : Optic chiasma, tuber cinereum, infundibulum (pituitary stalk), mammillary body, posterior perforated substance and tegmentum of midbrain. Optic recess is seen at the junction of floor with anterior wall.
5. Lateral wall : Medial surface of thalamus, hypothalamus and hypothalamic nuclei. Interventricular foramen (of Monroe) is seen at the junction of roof with anterior and lateral wall.

### 331. Epithelial lining of urinary bladder ?

a) Squamous

b) Transitional

c) Cuboidal

d) Columnar

Correct Answer - B

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

- Urothelium (transitional epithelium) is found in renal pelvis, calyces, ureter, urinary bladder, proximal part of urethra.

**332.**

## Chorda tympani is a part of ?

a) Middle ear

b) Inner ear

c) External auditory canal

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Middle ear

### **Contents of middle ear**

- *Contents of middle ear (tympanic cavity) are :?*
  1. Ear ossicles Malleus, incus, stapes
  2. Muscles → Tensor tympani, stapedius
  3. Chorda tympani
  4. Tympanic plexus

### 333. Greater petrosal nerve is formed from ?

a) Geniculate ganglion

b) Plexus around ICA

c) Plexus around middle meningeal artery

d) None of the above

Correct Answer - A

Ans. is 'a' i.e., Geniculate ganglion

#### **Petrosal nerves**

##### **Greater petrosal nerve**

- First branch of facial nerve
- Arises from geniculate ganglion
- In foramen lacerum it joins deep petrosal nerve and forms the nerve to pterygoid canal
- Supplies lacrimal glands, nose, mucosal glands of pharynx, palate.

##### **Lesser petrosal nerve**

- Branch of 9<sup>th</sup> cranial nerve through tympanic plexus (passes via otic ganglion)
- It supplies parotid gland.

##### **Deep petrosal nerve**

- It is a branch of sympathetic plexus around internal carotid artery.
- It contains cervical sympathetic fibers.

##### **External petrosal nerve**

It is an inconsistent branch of sympathetic plexus around middle meningeal artery.

### 334. Base of the heart is formed by ?

a) Right atrium

b) Right ventricle

c) Left atrium

d) Left ventricle

Correct Answer - C

Ans. is 'c > a' i.e., Left atrium > Right atrium

- Base (posterior surface) is formed mainly by left atrium and partly by right atrium. It is separated from T<sub>5</sub> to T<sub>8</sub> vertebrae by pericardium
- The **apex** (the most inferior, anterior, and lateral part as the heart lies in situ) is located on the midclavicular line, in the fifth intercostal space. It is formed by the left ventricle.
- Anterior (sternocostal) surface is formed mostly by right ventricle (major) and right auricle and partly by left ventricle and left auricle.

### 335. True about cardiac muscle is ?

a) Spindle shaped

b) Large central nucleus

c) No gap junctions

d) Arranged in sheets

Correct Answer - B

Ans. is 'b' i.e., Large central nucleus

### 336. Muscle causing supination of forearm ?

a) Biceps brachii

b) Brachioradialis

c) FDS

d) Anconeus

Correct Answer - A

Ans. is 'a' i.e., Biceps brachii

Movement      Muscles causing movement

Pronation      Pronator quadratus (strong pronator), Pronator teres  
(Rapid pronator).

Supination      Supinator (when elbow is extended), Biceps (when  
elbow is flexed)

**337. 3<sup>rd</sup> extensor compartment of wrist contains tendon of ?**

a) ECRL

b) ECRB

c) EPL

d) EPB

Correct Answer - C

Ans. C) EPL

- The **third compartment contains the extensor pollicis longus tendon**, which originates at the mid-ulna and inserts at the base of the first distal phalanx.
- In combination with the EPB **tendon**, it extends the thumb at the first carpometacarpal and first interphalangeal joints.

### 338. Ligament supporting the talus is ?

a) Spring ligament

b) Deltoid ligament

c) LCL

d) Cervical ligament

Correct Answer - A

Ans. A) Spring ligament

- **Spring ligament (Plantar calcaneonavicular ligament)** connects the calcaneum with the navicular bone.
- However, its principal job is to provide a sling for the talus, to **support the head of talus** (though it has no attachment to talus).
- This aids in supporting the weight of the body.
- Weakness or lengthening along this ligament can cause flat foot

### 339. Upper two posterior intercostal arteries arise from ?

a) Aorta

b) Superior intercostal artery

c) Internal mammary artery

d) Bronchial artery

Correct Answer - B

Ans. B) Superior intercostal artery

- The 1st and 2nd **posterior intercostal arteries arise** from the supreme **intercostal artery**, a branch of the costocervical trunk of the subclavian **artery**.
- The lower nine **arteries** are the aortic**intercostals**, so called because they **arise** from the back of the thoracic aorta.

**340. Which thalamic nuclei connects with neocortex?**

a) Pulvinar

b) Intralaminar

c) Anterior

d) All

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

### 341. Stapedius nerve is a branch of ?

a) Trigeminal nerve

b) Facial nerve

c) Vagus nerve

d) None

Correct Answer - B

Ans. is 'b' i.e., Facial nerve

#### **Branches of facial nerve**

1. In fallopian (facial canal) :- Greater petrosal (greater superficial petrosal) nerve, nerve to stapedius, chorda tympani.
2. At its exit from stylomastoid foramen :- Posterior auricular, digastric nerve, stylohyoid nerve.
3. Terminal branches :- Temporal, zygomatic, buccal, marginal mandibular, and cervical.

## 342. Deep injury of neck always involves

a) Platysma

b) Tropezius

c) Sternocleidomastoid

d) Longus colli

Correct Answer - A

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

**The neck is invested by two major fascial layers :?**

- .. Superficial fascia : Platysma and its investing fascia.
- ?.. Deep fascia : Invests the deeper muscles, the thoracic duct, blood vessels, nerves, glands, trachea and oesophagus.
- Significant injury to deep structures of the neck is unlikely without penetration of the platysma.
- Therefore, a stab wound that does not penetrate the platysma needs no further evaluation.

### 343. Glomus cells are found in -

a) Bladder

b) Brain

c) Chemoreceptors

d) Kidney

Correct Answer - C

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

- Arterial chemoreceptors consist of globular aggregations of chemoreceptive cells (glomus cells), and supportive cells, separated from one another by fibrous tissue septa.
- In these setpa and between glomus cells, numerous capillaries and nerve fibers are seen.
- The glomus cells have the structure of endocrine amine hormone secreting cells.

**344.**

## Most dependent part of abdomen in standing position is ?

a) Vesicouterine pouch

b) Pouch of Douglas

c) Rectouterine pouch

d) b & c

Correct Answer - D

Ans. is 'd' i.e., b & c

- In males, rectovesicle pouch of peritoneum intervenes between rectum and urinary bladder.
- Obliterated part of rectovesical pouch is called fascia of Denonviller's which separates posterior surface of prostate from rectum.
- In females rectouterine pouch (pouch of Douglas) lies between rectum (posteriorly) and uterus and posterior fornix of vagina (anteiorly).
- In females vesicouterine pouch lies between urinary bladder (anteriorly) and uterus posteriorly.
- The rectovesical pouch (in males) and rectouterine pouch (in females) are the most dependent portions of peritoneal cavity in erect posture

### 345. Carina is situated at which level ?

a) T<sub>3</sub>

b) T<sub>4</sub>

c) T<sub>6</sub>

d) T<sub>9</sub>

Correct Answer - A

Ans. is '13' i.e., T<sub>4</sub>

**Trachea bifurcates at carina, at the level of lower border of T<sub>4</sub> or T<sub>4</sub>- T<sub>5</sub> disc space.**

Structure	Cervico thoracic level
Tracheal bifurcation	T4-T5
Arch of aorta	Begins and ends at T4
Xiphoid process	T9
Splenic axis	Along 10th rib
Carotid bifurcation, Hyoid bone	C3
Upper border of thyroid cartilage	C4
Level of cricoids cartilage	C6
	Lumbar level
Celiac trunk	T12 - L I
Superior mesenteric artery	LI
Transpyloric plane	Lower border of LI

### 346. Pelvic pain is mediated by ?

a) Pudendal nerve

b) Sciatic nerve

c) Autonomic nerves

d) None of the above

Correct Answer - C

Ans. is 'c' i.e., Autonomic nerves

- Visceral afferent fibers of pelvis travel with autonomic nerve fibers.
- Visceral afferent fibers conducting reflexive sensations (information that does not reach consciousness) travel with parasympathetic fibers to spinal sensory ganglia of S<sub>2</sub>- S<sub>4</sub>.
- The route taken by visceral afferent fibers conducting pain sensation differs in relation to an imaginary line, the pelvic pain line, that corresponds to the inferior limit of peritoneum, except in case of large intestine, where pain line occurs midway along length of sigmoid colon.
- Visceral afferent fibers that transmit pain sensations from the viscera inferior to pelvic pain line travel in parasympathetic fibers of the spinal ganglia S<sub>2</sub> - S<sub>4</sub> (via pelvic splanchnic nerve or nerve erigentes).
- Visceral afferent fiber conducting pain from the viscera superior to pelvic pain line follow the sympathetic fibers reterogradely to inferior thoracic and superior lumbar (T<sub>1</sub> - L<sub>1,2</sub>) spinal ganglia.

### 347. Posterior relation of neck of pancreas ?

a) IVC

b) Origin of portal vein

c) Aorta

d) Common bile duct

Correct Answer - B

Ans. is 'b' i.e., Origin of portal vein

**348. Protrusion of tongue not possible in damage of ?**

a) Styloglossus

b) Hyoglossus

c) Palatoglossus

d) Genioglossus

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

### 349. Terminal branches of internal carotid artery are all except ?

a) Anterior cerebral artery

b) Middle cerebral artery

c) Posterior communicating artery

d) Cavernous artery

Correct Answer - D

Ans. is 'd > c' i.e., Cavernous artery > Posterior communicating artery

**This question has not been framed properly.**

- Internal carotid artery has two terminal branches, i.e. ICA ends by dividing into :?

.. Anterior cerebral artery

2. Middle cerebral artery (larger terminal branch)

I think, examiner wants to know the branches of terminal/cerebral part of ICA (not terminal branches). In that case answer is option 'd', as cavernous branch arises from cavernous part.

**Internal carotid artery**

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

.. Cervical part :- It extends from upper border of thyroid cartilage to the base of skull. This part gives no branch.

2. Petrous part :- It lies in bony carotid canal in the petrous temporal bone. It gives two branches (i) Caroticotympanic, and (ii) pterygoid.

3. Cavernous part :- It runs through the medial wall of cavernous sinus. It gives three branches : (i) Meningeal branch, (ii) hypophyseal branch and (iii) cavernous branch.

4. Cerebral part :- It is related to inferior surface of cerebrum. It gives

following branches: (i) Ophthalmic artery,(ii) posterior communicating artery, (iii) anterior choroidal artery, (iv) anterior cerebral artery and (v) middle cerebral artery.

### 350. Little's area is ?

a) Anteroinferior lateral wall

b) Anteroinferior nasal septum

c) Posteroinferior lateral wall

d) Posteroinferior nasal septum.

Correct Answer - B

Ans. is 'b' i.e., Anteroinferior nasal septum

Little's area is situated in the anterior inferior part of nasal septum, just above the vestibule.

Woodruff's plexus is situated in the posterior inferior part of lateral wall

**351.**

**Anterosuperior sternal part of heart is made up of ?**

a) Right atrium and auricle

b) Left atrium.

c) Left ventricle

d) Right ventricle

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

**352. Arch of Aorta develops from which aortic arch artery ?**

a) Right P<sup>t</sup>

b) Right 3rd

c) Left 4<sup>th</sup>

d) Left 3rd

Correct Answer - C

Ans. is 'c' i.e., Left 4<sup>th</sup>

### 353. Skin and fascia of great toe drains into ?

a) Superficial inguinal lymph nodes

b) External iliac nodes

c) Internal iliac nodes

d) Deep inguinal nodes

Correct Answer - A

Ans. is 'a' i.e., Superficial inguinal lymph nodes

### 354. Implantation occurs at ?

a) 2-3 days

b) 6-7 days

c) 15-20 days

d) 20-25 days

Correct Answer - B  
Ans. is 'b' i.e., 6-7 days

**355. Lower end of femur is ossified from how many ossification centers :?**

a) 1

b) 2

c) 3

d) 4

Correct Answer - A

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

There are three ossification centers in the proximal femoral end located in its head, greater and lesser trochanters, whereas there exists only one ossification center in the distal femoral end.

### 356. Muscle of third arch ?

a) Tensor tympani

b) Stylopharyngeus

c) Cricothyroid

d) None

Correct Answer - B

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

- Stylopharyngeus is the muscle of 3rd pharyngeal arch.

### 357. Sinus venosus receives blood from all except ?

a) Vitelline vein

b) Umbilical vein

c) Common cardinal vein

d) Subcardinal vein

Correct Answer - D

Ans. is 'd' i.e., Subcardinal vein

**Sinus venosus : It is the caudal most part of tubular heart. At its lower end it presents right and left horns. Each horn receives blood from following three veins :**

1. Vitelline vein from yolk sac. Right vitelline vein forms terminal part of inferior vena cava.
2. Umbilical vein from placenta.
3. Common cardinal vein from body wall. Right common cardinal vein forms superior vena cava.

### 358. Cochleate uterus is ?

a) Large uterus

b) Acute anteflexion

c) Acute retroflexion

d) Large cervix

Correct Answer - B

Ans. is 'b' i.e., Acute anteflexion

- Cochleate uterus is *acutely anteflexed uterus* with pin hole os.
- It is a small adult uterus with a conical cervix and a body that is small, globular and acutely flexed.
- It can cause primary dysmenorrhea.

**359. Which muscle originates from tendon of other muscle**

a) Palmaris longus

b) FCR

c) Lumbricals

d) Adductor pollicis

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

### 360. True about anterior intercostal artery ?

a) Present in 1<sup>st</sup> to 11<sup>th</sup> intercostal space

b) Each intercostal space has two anterior intercostal arteries

c) Branch of internal thoracic artery

d) Branch of aorta

Correct Answer - C

Ans. is 'c' i.e., Branch of internal thoracic artery

- Each of upper nine intercostal spaces (1 to 9) have one posterior and two anterior intercostal arteries. The 10<sup>th</sup> and 11<sup>th</sup> spaces have one posterior intercostal artery (no anterior intercostal artery)
- Posterior intercostal artery is the main artery of intercostal space and runs in the costal groove along the upper border of an intercostal space, lying between posterior intercostal vein and intercostal nerve (relationship from above downward VAN). 1<sup>st</sup> and 2<sup>nd</sup> posterior intercostal arteries are branches of superior intercostal artery (a branch of costocervical trunk from 2<sup>nd</sup> part of subclavian artery\*<sup>05</sup>). Lower nine (3<sup>rd</sup> to 11<sup>th</sup>) posterior intercostal arteries are branches of descending thoracic aorta. Right posterior intercostal arteries are longer than the left.
- Anterior intercostal arteries for upper six spaces (two in each space) arise from internal thoracic or internal mammary artery. For 7<sup>th</sup> to 9<sup>th</sup> spaces, these are branches of musculophrenic artery (terminal branch of internal thoracic artery).

### 361. Medulla oblongata arises from ?

a) Prosencephalon

b) Rhombencephalon

c) Mesencephalon

d) None

Correct Answer - B

Ans. 'B' i.e., Rhombencephalon

Medulla oblongata develops from caudal myelencephalon part of the rhombencephalic vesicle.

Neuroblasts from the alar plate of the neural tube at this level will produce the sensory nuclei of the medulla.

The basal plate neuroblasts will give rise to motor nuclei.

## 362. Interosseous membrane of forearm is pierced by?

a) Brachial artery

b) Anterior interosseous artery

c) Posterior interosseous artery

d) Ulnar recurrent artery

Correct Answer - B

Ans. is 'b' i.e., Anterior interosseous artery

- The anterior interosseous artery is the deepest artery on the front of forearm.
- It is one of the terminal branch of common interosseous artery, which in turn is a branch of ulnar artery.
- It is accompanied by anterior interosseous nerve, a branch of median nerve.
- It descends on the surface of the interosseous membrane between the FDP and FPL.
- It pierces the interosseous membrane at the upper border of the pronator quadratus to enter the extensor (dorsal) compartment.

**Branches of anterior interosseous artery are :?**

1. Muscular branches : For deep muscles of front of forearm.
2. Nutrient artery to radius and ulna.
3. Median artery.

### 363. Mastoid process is which type of epiphysis

a) Pressure

b) Aberrant

c) Atavistic

d) Traction

Correct Answer - D

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

#### Types of epiphysis

- The epiphysis are of following four types :?
  1. Pressure epiphysis : It is covered by an articular cartilage and takes part in the transmission of body weight, e.g. head of femur, head of humerus, condyles of tibia, lower end of radius etc.
  2. Traction epiphysis : It is non-articular and does not take part in weight transmission. It is produced by a pull of the muscle. Examples are greater and lesser trochanters of femur, greater and lesser tubercles of humerus and mastoid process.
  3. Atavistic epiphysis : It is an independent bone in lower mammals, which in man gets fused to the nearest bone to receive nutrition from the host bone. Examples are coracoid process of scapula, posterior tubercle of talus (os trigonum), etc.
  4. Aberrant epiphysis : It is an epiphysis which appears at unusual end of a short long bone, e.g. head of Pt metacarpal and base of other metacarpals.

### 364. Number of muscles in middle ear -

a) 1

b) 2

c) 3

d) 4

Correct Answer - B

Ans. is 'b' i.e., 2

Tensor tympani and Stapedius are the two muscles in middle ear. They both work to dampen the intensity of high pitched sound waves and thus protect inner ear.

**365. Ratio of connective tissue : smooth muscle in cervix is ?**

a) 2:1

b) 5:1

c) 8:1

d) None

Correct Answer - C  
Ans. is 'c' i.e., 8:1

### 366. Inferior epigastric artery forms the boundary of ?

a) Femoral triangle

b) Hesselbach's triangle

c) Adductor canal

d) Popliteal triangle

Correct Answer - B

Ans. is 'b' i.e., Hesselbach's triangle

The inguinal triangle (Hesselbach's triangle) is a region in the anterior abdominal wall. It is alternatively known as the medial inguinal fossa.

It was first described by Frank Hesselbach, a German surgeon and anatomist, in 1806.

The inguinal triangle is located within the inferomedial aspect of the abdominal wall. It has the following boundaries:

Medial – lateral border of the rectus abdominis muscle.

Lateral – inferior epigastric vessels.

Inferior – inguinal ligament.

**367. Superior wall of middle ear is formed by ?**

a) Tympanic membrane

b) Jugular bulb

c) Tegmen tympani

d) None

Correct Answer - C

Ans. is 'c' i.e., Tegmen tympani

- Roof (superior wall) of middle ear is formed by tegmen tympani.

### 368. Muscle causing flexion of hip ?

a) Biceps femoris

b) Psoas major

c) Gluteus maximus

d) TFL

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

### 369. Not true about facial vein is ?

a) Drains in EJV

b) Largest vein of face

c) Formed from angular vein

d) Has no valves

Correct Answer - A

Ans. is 'a' i.e., Drains in EJV

- The facial vein is the largest vein of the face with no valves.
- It begins as the angular vein at the medial angle of the eye.
- Angular vein is formed by the *union of supraorbital and supratrochlear veins*.
- The angular vein continues as facial veins.
- Which joins the anterior division of retromandibular vein (i.e. deep facial vein) below the angle of the mandible to form common facial vein.
- Common facial vein drains into the internal jugular vein.

### 370. Structure passing through superior orbital fissure?

a) Oculomotor nerve

b) Trochlear nerve

c) Superior ophthalmic vein

d) All of the above

Correct Answer - D

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

**Structures passing through superior orbital fissure are :-**

1. Middle part (within the ring) Upper and lower division of oculomotor nerve, nasociliary nerve, abducent nerve.
2. Lateral part (above the ring) :- Trochlear nerve, frontal nerve and lacrimal nerve, superior ophthalmic vein, recurrent menigeal branch of lacrimal artery, orbital branch of middle meningeal artery and sometimes meningeal branch of ophthalmic artery.
3. Medial part (below the ring) :- Inferior ophthalmic vein, sympathetic nerves around ICA.

### 371. Length of anal canal

a) 10 - 15 mm

b) 15 - 20 mm

c) 25 - 30 mm

d) 35 - 40 mm

Correct Answer - D

Ans. is 'd' i.e., 35 - 40 mm

- The anal canal is the terminal part of the alimentary canal.
- It begins at ano-rectal junction which is situated 2-3 cm in front and slightly below the tip of coccyx. From ano-rectal junction anal canal passes downwards and backwards through the pelvic diaphragm and opens at anal orifice (anus) which is situated in the cleft between the buttocks about 4 cm below and in front of the tip of coccyx.
- *Sacculations and taeniae are absent in anal canal.* The length of anal canal is 3.8 cm.

## 372. Most common congenital anomaly of kidney

a) Ectopic kidney

b) Renal duplication

c) Horse shoe kidney

d) Renal agenesis

Correct Answer - C

Ans. is 'c' i.e., Horse shoe kidney

- Horse shoe kidney is the most common congenital renal anomaly, with an incidence of 1 in 400 live births.
- Fusion typically occurs at lower poles, with subsequent arrest of ascend of kidney, due to restriction at the inferior mesenteric artery.
- As a result, kidneys are lower in abdomen.

### 373. Sacral promontory is the landmark for

a) Origin of superior mesenteric artery

b) Termination of presacral nerve

c) Origin of inferior mesenteric artery

d) None of the above

Correct Answer - B

Ans. is 'b' i.e., Termination of presacral nerve

- At the sacral promontory level or just caudal to it, the *presacral nerves terminate* and give rise to right and left hypogastric nerves, which will join the inferior hypogastric plexus at the level of S2-S3-S4.

### 374. Upper limb deformity in Erb's palsy?

a) Adduction and lateral rotation of arm

b) Adduction and medial rotation of arm

c) Abduction and lateral rotation of arm

d) Abduction and medial rotation of arm

Correct Answer - B

**Deformity in Erb's palsy (position of the limb):**

- Arm: Hangs by the side; it is **adducted & medially rotated**
- Forearm: Extended and **pronated**
- The deformity is known as '**policeman's tip hand**' or '**porter's tip hand**'

### 375. Cholecystocaval line separates:

a) Right & Left liver lobe

b) Liver with Gall Bladder

c) Right Lobe of Liver with Gall Bladder

d) Left Lobe of Liver with Gall Bladder

Correct Answer - A

Answer A. Right & Left liver lobe

Functional lobes and segments of the liver

- The functional right and left lobes of the liver are separated by an imaginary plane passing along the floor of fossa for gall bladder and the groove for inferior vena cava (cholecysto-caval line).
- On the anterosuperior surface of the liver, the plane passes little right to the attachment of falciform ligament. The functional right and left lobes of the liver are more or less of equal size.

## 376. Structure derived from first pharyngeal arch:

a) Levator palatini

b) Buccinator

c) Stylohyoid

d) Anterior belly of digastric

Correct Answer - D

Answer D. Anterior belly of digastric

### MESODERMAL DERIVATIVES OF PHARYNGEAL ARCHES

Pharyngeal arch	Muscular contributions	Skeletal contributions	Nerve
Ist (also called "mandibular arch")	<ul style="list-style-type: none"> <li>• Mylohyoid</li> <li>• Muscles of mastication</li> <li>• Anterior belly of digastric</li> <li>• Tensor veli palatini</li> <li>• Tensor tympani</li> <li>• Stapedius</li> <li>• Stylohyoid</li> </ul>	<ul style="list-style-type: none"> <li>• Maxilla</li> <li>• Zygomatic bone</li> <li>• Part of temporal and vomer, sphenoid, mandible</li> <li>• Meckel's cartilage:- Malleus, incus</li> <li>• Anterior ligament of malleus</li> <li>• Sphenomandibular ligament</li> <li>• Reichert's cartilage, stapes (except footplate)</li> </ul>	Mandibular division of Trigeminal Nerve (V3).

II <sup>nd</sup> (also called the "hyoid arch")	<ul style="list-style-type: none"> <li>• Posterior belly of digastric</li> <li>• Facial expression muscles</li> </ul>	<ul style="list-style-type: none"> <li>• Styloid process</li> <li>• Stylohyoid ligament</li> <li>• Smaller cornu of hyoid</li> <li>• Superior part of body of hyoid</li> </ul>	Facial
III <sup>rd</sup>	<ul style="list-style-type: none"> <li>• Stylopharyngeus</li> </ul>	<ul style="list-style-type: none"> <li>• Greater cornu of hyoid</li> <li>• Lower part of body of hyoid</li> </ul>	Glossopharyngeal
IV <sup>th</sup>	<ul style="list-style-type: none"> <li>• Pharyngeal muscles</li> <li>• Cricothyroid</li> </ul>	<ul style="list-style-type: none"> <li>• Cartilage of larynx except arytenoids</li> <li>• superior parathyroids, epiglottic cartilage</li> </ul>	Superior laryngeal branch of Vagus
VI <sup>th</sup>	<ul style="list-style-type: none"> <li>• Intrinsic muscles of larynx (except cricothyroid)</li> </ul>	<ul style="list-style-type: none"> <li>• Arytenoid cartilage of larynx</li> </ul>	Recurrent laryngeal nerve (branch of vagus)

### 377. Joint involved in movement of head from left to right.

a) Atlanto axial

b) Atlanto occipital

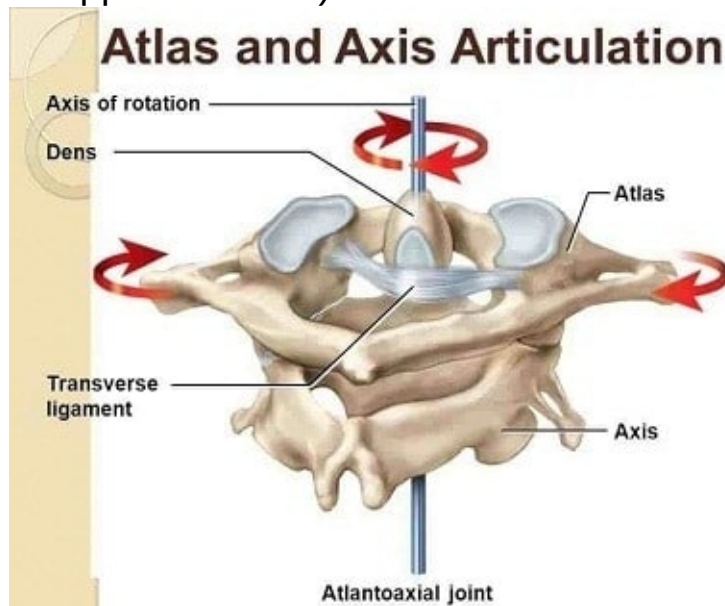
c) C2- C3 Joint

d) C3- C4 Joint

Correct Answer - A

Answer A. Atlanto axial

- Atlanto-occipital (between skull and C1) joint permits nodding of head ( as when indicating approval or YES) and Atlanto-axial joint permits the head to be turned from side to side (as indicating disapproval or NO).



### 378. What is the nerve supply of Submandibular gland:

a) Auriculotemporal nerve

b) Lingual nerve

c) Glossopharyngeal nerve

d) Inferior alveolar nerve

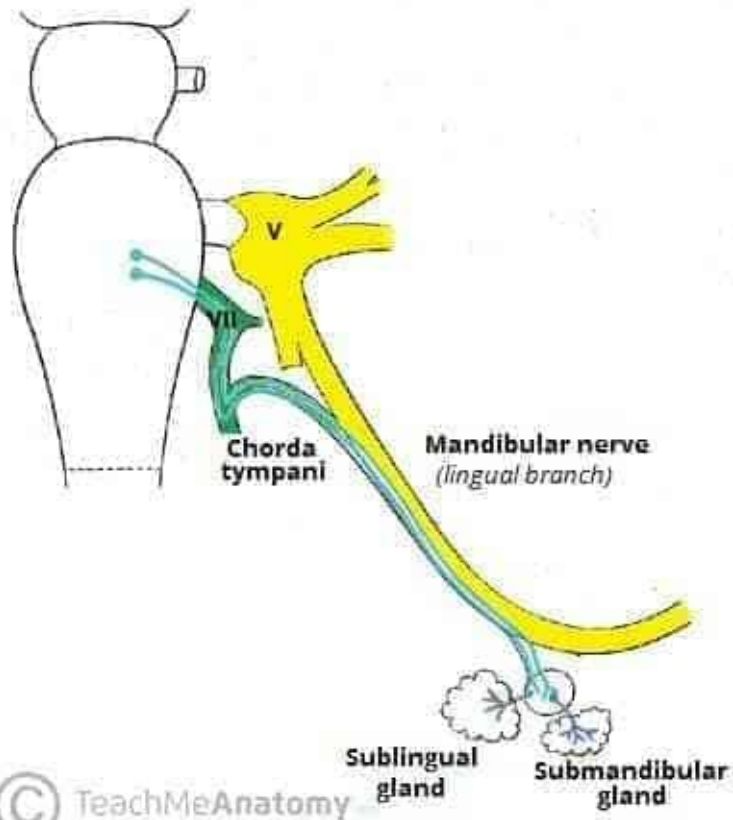
Correct Answer - B

Answer B. Lingual Nerve

- The submandibular glands receive autonomic innervation through parasympathetic and sympathetic fibres, which directly and indirectly regulate salivary secretions respectively.

#### **Parasympathetic**

- Parasympathetic innervation originates from the superior salivatory nucleus through pre-synaptic fibres, which travel via the chorda tympani branch of the facial nerve (CN VII).
- The chorda tympani then unifies with the lingual branch of the mandibular nerve (CN VIII) before synapsing at the submandibular ganglion and suspending it by two nerve filaments.
- Post-ganglionic innervation consists of secretomotor fibres which directly induce the gland to produce secretions, and vasodilator fibres which accompany arteries to increase blood supply to the gland. Increased parasympathetic drive promotes saliva secretion.



### **Sympathetic**

- Sympathetic innervation originates from the superior cervical ganglion, where post-synaptic vasoconstrictive fibres travel as a plexus on the internal and external carotid arteries, facial artery and finally the submental arteries to enter each gland. Increased sympathetic drive reduces glandular blood flow through vasoconstriction and decreases the volume of salivary secretions, resulting in a more mucus and enzyme-rich saliva.

### 379. Parathyroid gland is implanted in which muscle?

a) Sartorius

b) Supinator

c) Deltoid

d) Brachioradialis

Correct Answer - D

Answer D. Brachioradialis

#### **Parathyroid surgery: Autotransplantation**

- The most common places for auto-implantation of parathyroid glands are the brachioradialis muscle and the presternal region. Other locations can also be used: the sternocleidomastoid, the subcutaneous tissue of upper limbs and abdominal fat.

### 380. Right coronary artery arises from?

a) Right Aortic Sinus

b) Left Aortic Sinus

c) Posterior coronary sinus

d) Anterior coronary sinus

Correct Answer - A

Answer A. Right Aortic Sinus

- RCA arises from anterior aortic sinus aka Right aortic sinus.
- LCA arises from left posterior aortic sinus.

### 381. Duct of Bellini are present in:

a) Pancreas

b) Liver

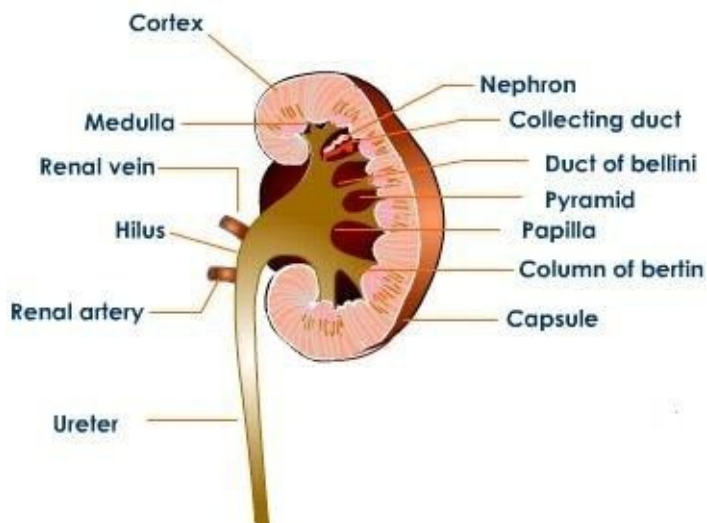
c) Kidney

d) Salivary gland

Correct Answer - C

Answer C. Kidney

- Papillary (collecting) ducts are anatomical structures of the kidneys, previously known as the ducts of Bellini.
- Papillary ducts represent the most distal portion of the collecting duct.
- They receive renal filtrate (precursor to urine) from several medullary collecting ducts and empty into a minor calyx.



**382. Which of the following exocrine glandular ducts are not obstructed in cystic fibrosis:**

a) Pancreas

b) Lung

c) Sweat gland

d) All of above

Correct Answer - C

Answer C. Sweat gland

Most CF patients have 3 distinct abnormal characteristics:

- The ducts of the mucus-secreting glands are obstructed due to an increase in viscosity of these secretions leading to glandular dilatation and destruction.
- CF patients are prone to chronic bacterial colonization and infections.
- The sweat glands are not obstructed in CF patients because in serous glands such as sweat glands there are abnormal concentrations of inorganic ions, rather than glandular obstruction with thick mucus.
- The quantitative pilocarpine iontophoresis sweat test is a uniformly accepted method for diagnosing CF. The sweat gland ducts must be patent for this test.
- Obstruction of airways leads to bronchiectasis and atelectasis; pancreatic duct obstruction leads to pancreatitis and malabsorption; and plugging of bile ducts leads to obstructive jaundice.

### 383. Boot shape of heart in TOF is due to:

a) Left atrial enlargement

b) Right atrial enlargement

c) Right ventricular hypertrophy

d) Biventricular hypertrophy

Correct Answer - C

Answer C. Right ventricular hypertrophy

- Boot shaped heart. A 'boot-shaped' heart ("cœur en sabot" in French) is the description given to the appearance of the heart on plain film in some cases of Tetralogy of Fallot.
- It describes the appearances of an upturned cardiac apex due to right ventricular hypertrophy and a concave pulmonary arterial segment.

**384. Which of the following structure is not derived from external oblique muscle:**

a) Inguinal ligament

b) Lacunar ligament

c) Cooper ligament

d) Linea Semilunaris

Correct Answer - D

Answer D. Linea Semilunaris

The external oblique muscle (of the abdomen) (also external abdominal oblique muscle) is the largest and the outermost of the three flat muscles of the lateral anterior abdomen.

- Inguinal ligament (Poupart's ligament) is the folded lower border of external oblique aponeurosis
- Lacunar ligament (Gimbernat ligament) is the crescent shaped expansion from the medial end of inguinal ligament attached to pectineal line of pubis.
- Pectineal ligament (Cooper's ligament) is strong fibrous band extending laterally from the lacunar ligament along pectineal line of pubis. Similar to lacunar ligament, it is made of external oblique aponeurosis.
- Reflected part of inguinal ligament extends from the lateral crus of superficial inguinal ring formed by inguinal ligament upwards to linea alba. It forms the posterior wall of inguinal canal.
- The linea semilunaris (also semilunar line or Spigelian line) is a curved tendinous intersection found on either side of the rectus abdominis muscle.

### 385. Contralateral loss of pain and temperature is due to injury to:

a) Anterior spinothalamic tract

b) Lateral spinothalamic tract

c) Fasciculus gracilis

d) Fasciculus cuneatus

Correct Answer - B

Answer B. Lateral spinothalamic tract

- Damage to lateral spinothalamic tract leads to loss of pain and temperature on the opposite side of the body below the level of lesion, since the neurons of this tract crosses to the opposite side in the spinal cord.
- Anterior spinothalamic tract carries crude touch and pressure sensations. Fasciculus gracilis and fasciculus cuneatus carries conscious proprioception, fine touch, stereognosis and vibration sensations.

### 386. Space of Disse is in:

a) Spleen

b) Lymph node

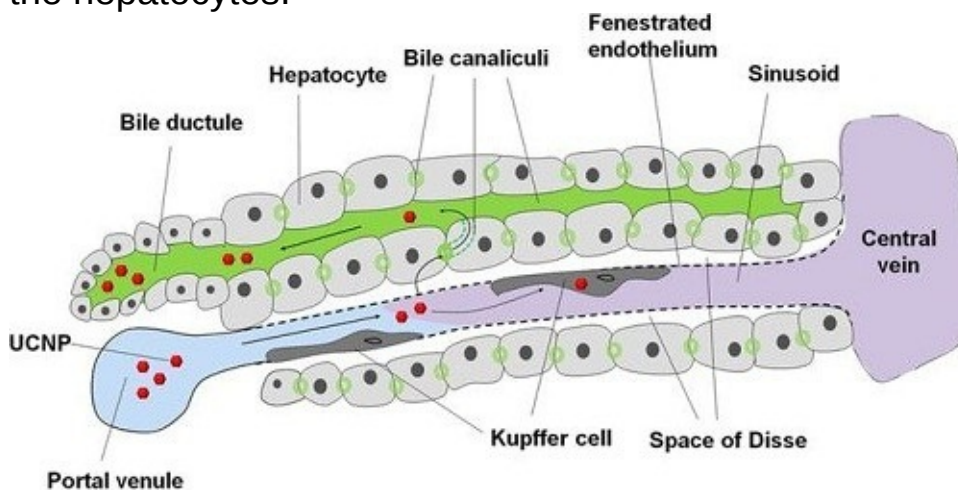
c) Liver

d) Bone

Correct Answer - C

Ans. C. Liver

- The perisinusoidal space (or space of Disse) is a location in the liver between a hepatocyte and a sinusoid.
- It contains the blood plasma.
- Microvilli of hepatocytes extend into this space, allowing proteins and other plasma components from the sinusoids to be absorbed by the hepatocytes.



### 387. What are Gitter cells:

a) Macrogliia

b) Modified macrophages in CNS

c) Astrocytes

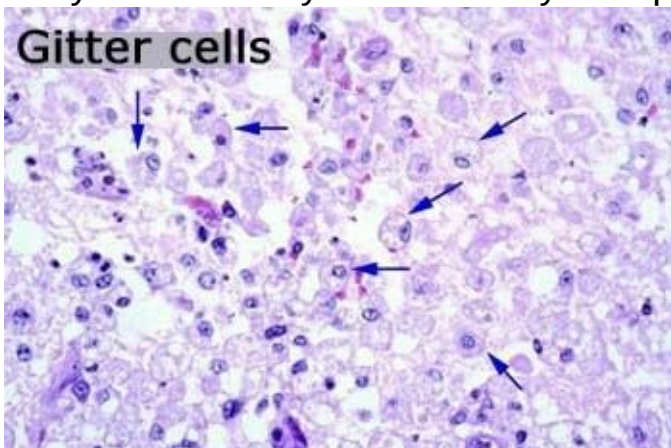
d) Oligodendrocytes

Correct Answer - B

Answer B. Modified macrophages in CNS

#### **Gitter cells:**

- These cells are macrophages and because of their appearance they are called “Gitter cells”.
- They look this way because they are lipid-laden.



- These macrophages are thought to be mainly derived from circulating blood monocytes, but some probably originate from resident microglia.
- Any time there is parenchymal damage (e.g. inflammation, infarction, parasite migration) these cells will phagocytose lipid from degenerated myelin and cellular debris.
- These lipid-laden macrophages migrate to the perivascular spaces

and leave the CNS via the blood or CSF.

### 388. Syndrome associated with posterior inferior cerebellar artery thrombosis:

a) Wallenberg syndrome

b) Medial medullary syndrome

c) Inferior alternating syndrome

d) Dejerine syndrome

Correct Answer - A

Answer A. Wallenberg syndrome

- Wallenberg syndrome is also known as lateral medullary syndrome or the posterior inferior cerebellar artery syndrome.
  - Wallenberg described the first case in 1895.
  - This neurological disorder is associated with a variety of symptoms that occur as a result of damage to the lateral segment of the medulla posterior to the inferior olivary nucleus.
  - It is the most typical posterior circulation ischemic stroke syndrome in clinical practice.
- Etiology:**
- Wallenberg syndrome is caused most commonly by atherothrombotic occlusion of the vertebral artery, followed most frequently by the posterior inferior cerebellar artery, and least often, the medullary arteries.
  - Hypertension is the commonest risk factor followed by smoking and diabetes.
  - Medial medullary syndrome, also known as inferior alternating syndrome, hypoglossal alternating hemiplegia, lower alternating hemiplegia, or Dejerine syndrome, is a type of alternating hemiplegia

characterized by a set of clinical features resulting from occlusion of the anterior spinal artery.

### 389. Urethral crest is an elevation seen in urethra due to:

a) Prostatic glands

b) Insertion of detrusor muscle

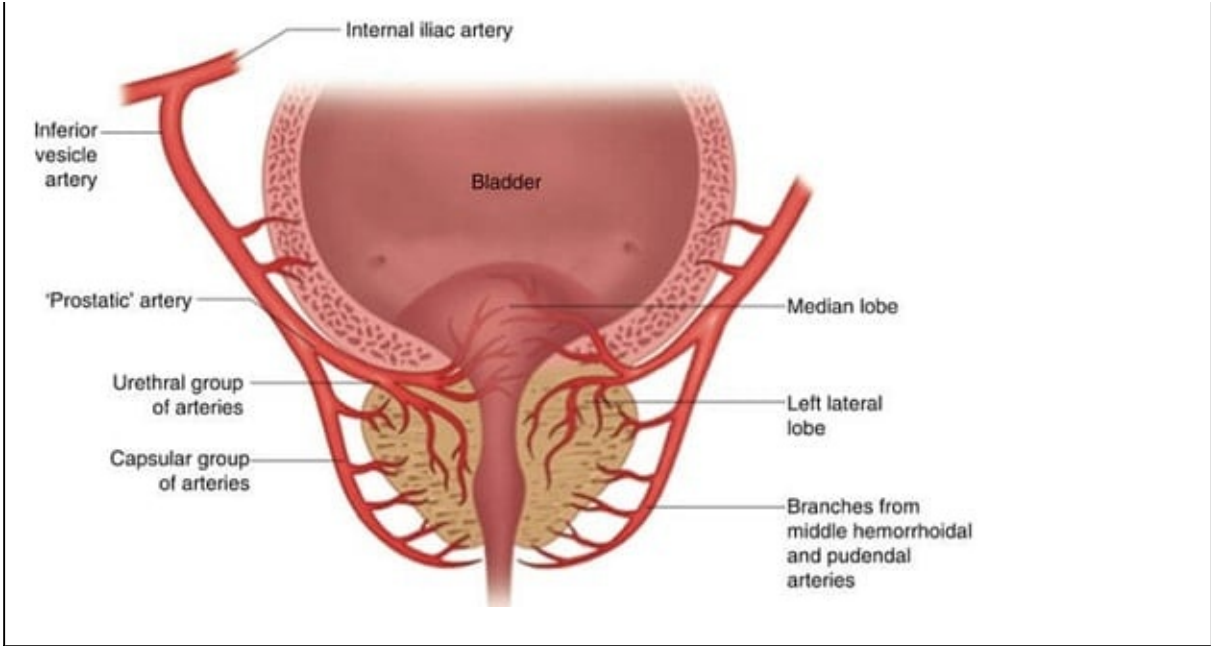
c) Insertion of trigone

d) Preprostatic internal sphincter

Correct Answer - A

**Answer-** A (Prostatic glands)

- The urethral crest is an anatomical feature present in the urinary system of both males and females.
- The prostatic portion (pars prostatica), the widest and most dilatable part of the canal, is about 3 cm long.
- Upon the posterior wall or floor is a narrow longitudinal ridge, the urethral crest, formed by an elevation of the mucous membrane and its subjacent tissue.
- On either side of the crest is a slightly depressed fossa, the prostatic sinus, the floor of which is perforated by numerous apertures, the orifices of the prostatic ducts from the lateral lobes of the prostate; the ducts of the middle lobe open behind the crest.



### 390. Maxillary bone does not articulate with:

a) Ethmoid

b) Sphenoid

c) Frontal

d) Lacrimal

Correct Answer - B

**Ans: B. Sphenoid**

(Ref Gray's 41/e p484, 40/e p473-476)

Maxillary bone does not articulate with sphenoid.

**Articulation of maxilla:**

Each **maxilla articulates with nine bones:**

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

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

a) Inferior to foramen ovale

b) Lateral to tensor veli palatini

c) Lateral to mandibular nerve

d) Anterior to middle meningeal artery

Correct Answer - C

**Ans: C. Lateral to mandibular nerve**

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

Mandibular nerve lies lateral to otic ganglion.

ie., Ganglion lies medial to mandibular nerve.

**Otic ganglion:**

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

**392. In spermatogenesis, independent assortment of paternal and maternal chromosomes occurs during-**

a) Primary to secondary spermatocyte

b) Spermatogonia to primary spermatocyte

c) Secondary spermatocyte to spermatids

d) Spermatids to spermatozoa

Correct Answer - A

Answer- A. Primary to secondary spermatocyte

- In spermatogenesis, independent assortment of paternal and maternal chromosomes occurs during meiosis I, in which primary spermatocyte ( $2n$ ) is converted into two secondary spermatocytes ( $n$ ).

### 393. Sacrotuberous ligament is pierced by

a) Perforating cutaneous nerve

b) Posterior femoral cutaneous

c) Superior gluteal nerve

d) Sciatic nerve

Correct Answer - A

**Ans: A Perforating cutaneous nerve**

**Sacrotuberous ligament (STL) -**

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

### 394. Lining epithelium of vagina is

a) Squamous epithelium

b) Columnar epithelium

c) Transitional epithelium

d) Secretory epithelium

Correct Answer - A

**Ans: A Squamous epithelium**

(Ref: Ramesh Babu p. 24]

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

### 395. Tongue muscles are derived from

a) Lateral plate mesoderm

b) Occipital myotome

c) Intermediate mesoderm

d) Cervical myotome

Correct Answer - B

**Ans: B Occipital myotome**

**Development of the tongue:-**

**I. Epithelium:**

Ant 2/3 -- lingual swellings of 1st arch and tuberculum impar.

Post 1/3 -- large dorsal part of hypobranchial eminence, i.e, 3rd arch.

Posterior most part -- small dorsal part of the hypobranchial eminence, i.e. 4th arch.

**II. Muscles:**

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

### 396. 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

**397. 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.

### 398. 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

### 399. 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<sup>h</sup>/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.

## 400. 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 T<sub>5</sub> to T<sub>11</sub> spinal segments.

## 401. 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.

## 402. 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.

### 403. Lymphatic drainage of lateral wall of nose

a) Submandibular nodes

b) Retropharyngeal nodes

c) Deep cervical nodes

d) All of the above

Correct Answer - D

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

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

**404.**

## Part of neural tube from which corpus callosum develops

a) Basal lamina

b) Alar lamina

c) Lamina terminalis

d) Basal plate

Correct Answer - C

**Ans. is 'c' i.e., Lamina terminalis**

- The development of the corpus callosum occurs between the 12th and 16-20th weeks of gestation.
- It begins with the genu and then continues posteriorly along the body to the splenium. The rostrum is the last part to be formed.
- Myelination of the corpus callosum occurs in the opposite direction, from the splenium forwards.
- They develop from lamina terminalis which is *cranial part of neural tube* and later lies in the anterior wall of 3<sup>rd</sup> ventricle.
- The corpus callosum, the largest of cerebral commissures, takes the form of an arch over the third ventricle.
- It connects the neocortices of both sides.

## 405. Gene for eye morphogenesis

a) Pax-6

b) BMP-4

c) HOX-D13

d) HOX-A13

Correct Answer - A

**Ans. is 'a' i.e., Pax-6**

- The Pax-6 gene locus is a transcription factor for various genes and growth factors involved in eye formation. Pax-6 is a master control gene for eye morphogenesis and encodes for Paired box protein Pax-6 (also called aniridia type II protein or oculorhombin).

## 406. Not attached on medial border of scapula ?

a) Serratus anterior

b) Levator scapulae

c) Rhomboides major

d) Teres major

Correct Answer - D

**Ans. is 'd' i.e., Teres major**

**Muscles attached to scapula are :-**

- Coracoid process :- Tip of the coracoid process gives origin to coracobrachialis (medially) and short head of the biceps laterally.
- The upper surface receives insertion of pectoralis minor.
- Spine of scapula and acromion process :- There is origin of Deltoid and insertion of trapezius.
- Glenoid tubercle :- Supraglenoid tubercle gives origin to the long head of biceps and infra glenoid tubercle gives origin to long head of triceps.
- Lateral border :- Origins of teres minor and teres major.
- Medial border :- Insertions of serratus anterior (anteriorly); and rhomboideus major, rhomboideus minor and levator scapulae (posteriorly).
- Costal (anterior) surface (origin) Subscapularis.
- Dorsal surface (origins) Supraspinatus, infraspinatus and at inferior angle latissimus dorsi.

## 407. Floor of Petit triangle is formed by?

a) Sacrospinalis

b) Internal oblique

c) Rectus abdominis

d) Fascia Transversalis

Correct Answer - B

**Ans. is 'b' i.e., Internal oblique [Ref Text book of surgical anatomy p. 148]**

**Boundaries of Petit triangle (inferior lumbar triangle) are?**

- Base - Iliac crest
- Anterior boundary (abdominal boundary) → Posterior border of external oblique muscle.
- Posterior boundary (lumbar boundary) - Anterior border of latissimus dorsi.
- Floor is formed by internal oblique muscle.

**408. Which of the following arises from  
infraglenoid tubercle -**

a) Longheadofbiceps

b) Longheadoftriceps

c) Shortheadofbiceps

d) Coracobrachialis

Correct Answer - B

**Ans. is 'b' i.e., Long head of triceps**

- Supraglenoid tubercle of scapula : origin of long head of biceps.
- Infraglenoid tubercle of scapula : origin of long head of triceps

## 409. What is true about adductors of thigh –

a) Ischial head of adductor magnus is an adductor

b) Profunda femoris artery is the main blood supply

c) Ischial head of adductor magnus originates from adductor tubercle

d) Adductor magnus is the largest muscle

Correct Answer - D

**Ans. is'd'i.e., Adductor magnus is the largest muscle**

- Ischial head of adductor magnus is a hamstring muscle (not adductor).
- Ischial head of adductor magnus originates from inferolateral aspect of Ischial tuberosity (not from adductor tubercle).
- Main artery of adductor (medial) compartment of thigh is obturator artery (not profunda femoris).
- Adductor magnus is the largest muscle of the adductor compartment.

**410. All are supplied by anterior interosseous nerve except –**

a) Flexor carpi ulnaris

b) Brachioradialis

c) Abductor pollicis brevis

d) Flexor pollicis longus

e) Flexor digitorum superficialis

Correct Answer - A:B:C:E

**Ans. is 'a' i.e., Flexor carpi ulnaris 'b' i.e., Brachioradialis; 'c' i.e., Abductor pollicis brevis; & 'e' i.e., Flexor digitorum superficialis**

- The anterior interosseous nerve (**volar** interosseous nerve) is a branch of the **median nerve** that supplies the deep muscles on the anterior of the forearm, except the ulnar (**medial**) half of the flexor digitorum profundus.

## 411. Teres minor is supplied by

a) Suprascapular nerve

b) Infrascapular nerve

c) Thoracodorsal nerve

d) Axillary nerve

Correct Answer - D

**Ans. is'd'i.e., Axillary nerve [Ref:BDC 6h/e Vol.I p. 671**

- Axillary nerve supplies teres minor and deltoid.

## 412. Number of lobes in breast

a) 5

b) 10

c) 15

d) 30

Correct Answer - C

**Ans. is'c'i.e., 15|Ref; BDC tr/eVol.I p. 361**

- Breast (mammary gland) is a modifeil sweat glaad present in the superficial fascia of pectoral region.
- It consists of 15-20 lobes.
- Vertically it extends from 2nd to 6th ribs at midclavicular line and horizontal extent is from sternal margin to midaxillary line at the level of 4h rib.

## 413. Content of anatomical snuffbox

a) Radial artery

b) Brachial artery

c) Ulnar artery

d) Interosseus artery

Correct Answer - A

**Ans. is 'a' i.e., Radial artery [Ref: AK Dutta p. 861]**

- Triangular depression on the dorsal and radial aspect of the hand become visible when thumb is fully extended.

### **Boundaries**

- Media/Posterior → Tendon of the extensor pollicis longus.
- Lateral/Anterior → tendon of the extensor pollicis brevis and abductor pollicis longus,
- Roof → Skin and fascia with beginning of cephalic vein and crossed by superficial branch of the radial nerve
- Floor → Styloid process of radius, trapezium, scaphoid and base of first metacarpal
- Contents → The radial artery

#### 414. Abduction and adduction of foot occurs at which joints

a) Ankle

b) Subtalar

c) Tarso-metatarsal

d) None

Correct Answer - B

**Ans. is'b'i.e., Subtalar [Ret Clinical arthopaedics p. 7861**

- Adduction and abduction of foot occurs mainly at subtalar joint.
- Movements take place at ankle are dorsiflexion and plantarflexion.
- Inversion and eversion take place at Subtalar joint and midtarsal joints.

## 415. Content of femoral canal

a) Femoral branch of genitofemoral nerve

b) Genital branch of genitofemoral nerve

c) Femoral vein

d) Lymph node

Correct Answer - D

**Ans. is'd'i.e., Lymph node [Ref BDC 5th/e Vol.2 p. 53, 54]**

- Femoral sheath is a funnel shaped fascial prolongation around proximal part of femoral vessels, situated in the femoral triangle, below the inguinal ligament. It is 3-4 cm long. It is formed by fascia iliaca.
- Femoral ring is bounded: Anteriorly by inguinal ligament, medially by the lacunar ligament, posteriorly by pectineus with its covering fascia, and laterally by septum separating it from femoral vein.
- Femoral canal contains lymph node of Cloquet or Rosenmüller and lymphatics.

## 416. Most common ligament damaged in knee injury is

a) ACL

b) PCL

c) MCL

d) LCL

Correct Answer - C

**Ans. is 'c' i.e., MCL [IRef; Textbook of sports medicine &/e p. 138]**

- Most commonly injured ligament in knee -+ Medial collateral ligament (MCL).
- MCL tear is the most common knee ligament injury"
- MCL injury is the most common ligament injury to the knee"
- Practical orthopaedics sports medicine
- MCL is the most commonly injured knee ligament"
- ACL is the 2nd most commonly injured knee ligament, almost as frequent as MCL.

## 417. Distance of cricopharynx from incisor teeth

a) 15 cm

b) 22.5 cm

c) 27.5 cm

d) 40 cm

Correct Answer - A

**Ans. is'a'i.e., 15 cm [Ref- BDC Sn/e Vol.I p. 269]**

- Cricopharynx is at the level of pharyngo-esophageal junction i.e. beginning of esophagus. Its distance is 15 cm (6 inches) from incisor.
- Cardiac end is lower end of esophagus which is at 40 cm from incisors.

**418. All veins open in sinus venarum except -**

a) SVC

b) Coronary sinus

c) Anterior cardiac vein

d) Small cardiac vein

Correct Answer - D

**Ans. is'd'i.e., Small cardiac vein [Ref: Gray's 38e/e p. 14791**

- Small cardiac vein does not open into sinus venarum (Posterior smooth part of right atrium).

**419. Which structure does not pass through superior thoracic aperture -**

a) Right vagus

b) Right brachiocephalic artery

c) Thoracic duct

d) Right recurrent laryngeal nerve

Correct Answer - D

**Ans- Ans. is 'd' i.e., Right recurrent laryngeal nerve [Ref- BDC 6h/e Vol.I p. 192]**

**Thoracic inlet (superior aperture)**

- The narrow upper end of the thorax, which is continuous with the neck is called the inlet of the thorax'
- The structure passing through the inlet are : -I. Vkcera:-  
Trachea, esophagus, apex of lung with pleura, remains of the thymus, thoracic duct.

**420. Common hepatic artery is a branch of -**

a) Splenic artery

b) Superior mesenteric artery

c) Inferior mesenteric artery

d) Coeliac trunk

Correct Answer - D

**Ans. is'd'i.e., Coeliac trunk [Ref BDC 6h/eVol.2 p. 2761**

- Common hepatic artery is a branch of coeliac trunk.

**421. Esophageal varices occur in which portion of esophagus?**

a) Upper

b) Middle

c) Lower

d) All sites

Correct Answer - C

**Ans. is 'c' i.e., Lower [Ref: AK Dutta P. 275, 2761**

- Esophageal varices occurs at lower end of esophagus due to porto-caval anastomosis.

## 422. Anorectal angle is formed due to action of -

- a) Internal anal sphincter
- b) Circular muscle layer of smooth muscles
- c) Longitudinal muscle layer of smooth muscle
- d) Puborectalis

Correct Answer - D

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

- The ano-rectal angle (ARA) is the angle between longitudinal axis of rectum (which is represented by posterior rectal line) and longitudinal axis of anal canal.
- The normal average value is 95-96° (physiological range 65-100°).
- ARA is an indirect indicator of the puborectalis muscle activity. During muscle contraction, ARA becomes more acute, while during relaxing phase it becomes obtuse.

### 423. Prostate analogue in female is -

a) Skene gland

b) Bulbourethral gland

c) Great vestibular gland

d) Bartholin's gland

Correct Answer - A

**Ans. is'a'i.e., Skene gland [Ref: Clinical anatomy p.421]**

- Prostate analog in female → > Skene glands (Periurethral glands).
- Uterus and vagina analog in male → > Prostatic utricle.

## 424. Tail of pancreas develops from -

a) Hepatic diverticulum

b) Dorsal pancreatic duct

c) Ventral pancreatic duct

d) All of the above

Correct Answer - B

**Ans. is'b'i.e., Dorsal pancreatic duct [Ref I.B. Singh Vh/e p. 28]**

## 425. Haustrations are present in -

a) Duodenum

b) Ileum

c) Jejunum

d) Colon

Correct Answer - D

**Ans. is 'd'i.e., Colon [Rel BDC #/e Vol.2 p. 2661**

1. Characteristics features of large intestine (colon) are:-i)
  1. Longitudinal bands, formed by longitudinal muscle coat, called Taeniae coli.
  2. Sacculation or haustration
  3. Fat filled peritoneal pouches called appendices epiploicae. These are not found in appendix, caecum and rectum.
  4. Greater part is fixed except for appendix, transverse colon and sigmoid colon.
  5. Peyer's patches (present in small intestine) are not present.

**426.**

## Anterior relation to upper part of rectum in male is-

a) Rectovesical pouch

b) Sacrum

c) Seminal vesicle

d) Ductus deference

Correct Answer - A

**Answer-is'a' i.e., Rectovesical pouch [Ref; BDC Ple Vol.2 p. 408]**

### **Anteriorly In males**

- The upper two-thirds of the rectum is related to the rectovesical pouch with coils of intestine and sigmoid colon.
- The lower one-third of the rectum is related to the base of the urinary bladder, the terminal parts of the ureters, the seminal vesicles, the different ducts and the prostate.

## 427. Sensory nerve supply of gall bladder is through -

a) Vagus nerve

b) Trigeminal nerve

c) Parasympathetic nerve

d) Facial nerve

Correct Answer - A

**Ans. is 'a' i.e., Vagus nerve [Rel BDC &e Vol.3 p. 2901**

- Pain sensory fibers to gall bladder are through Vagus, sympathetic and phrenic nerves. Thus gall bladder pain may be referred to-a) Through vagus to the stomach (epigastrium).
- Through the sympathetic nerves to the inferior angle of the right scapula. Lateral horn of thoracic 7 segment of spinal cord gives sympathetic fibres to coeliac ganglion through greater splanchnic nerve. T7 segment receives pain fibres from skin over inferior angle of scapula. So visceral pain is referred to somatic area.
- Through the phrenic nerve to the right shoulder (C4 gives fibres to phrenic nerve and supraclavicular nerves).

## 428. Ligament which prevents spleen to fall in left iliac fossa -

a) Leinorenal ligament

b) Phrenicolic ligament

c) Upper pole of right kidney

d) Sigmoid colon

Correct Answer - B

**Answer- 'b'i.e., Phrenicolic ligament [Ref: Gruy's 4Uh/e p. 1107, 1108, 12141**

- Spleen lies in left side of abdomen (left hypochondrium).
- But enlargement of spleen (splenomegaly) does not cause extension into left iliac fossa.
- A pathologically enlarged spleen extends downward and medially towards right iliac fossa because phrenicocolic ligament and left colic flexure prevent a direct downward enlargement.

## 429. Labour pain in uterus is carried by

a) Parasympathetic nerves

b) Sympathetic nerves

c) Pudendal nerve

d) Splanchnic nerve

Correct Answer - B

**Ans. is 'b'i.e., Sympathetic nerves [Ref: Clinical obstetrics 3d/e p. 9121**

**Nerve supply of uterus:**

- The uterus is supplied by both systems, sympathetic and parasympathetic.
- Sympathetic system fibers arise from T<sub>10</sub>, L<sub>1</sub> segments and carry painful sensations from the body of the uterus.
- Parasympathetic fibers arise from S<sub>2</sub>, S<sub>3</sub>, S<sub>4</sub> (in pelvic splanchnic nerve) and carry painful sensations from cervix.

**430. Posterior relation of right kidney are all except -**

a) Diaphragm

b) Subcostal nerve

c) 11<sup>th</sup> rib

d) Ilioinguinal nerve

Correct Answer - C

**Ans. is 'c' i.e., 11th rib**

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

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

### 431. Not True about blood supply of kidney -

a) Renal vein drains into IVC

b) Renal artery is a branch of common iliac artery

c) Right renal artery passes behind IVC

d) Branches of renal artery are end arteries

Correct Answer - B

**Ans. is 'b'i.e., Renal artery is a branch of common iliac artery [Re/ BDC &/eVol.2 p. 313-3171**

- Each kidney is supplied by renal artery (branch of abdominal aorta) and is drained by renal vein to IVC.
- Renal artery:- Right renal artery is longer and passes behind IVC.
- Branches of the renal artery are end arteries.

**432.**

**3<sup>rd</sup> part of duodenum is not related -**

a) Superior mesenteric vessels

b) Right ureter

c) Head of pancreas

d) Quadrate lobe of liver

Correct Answer - D

**Ans. is 'd' i.e., Quadrate lobe of liver [Ref BDC 6h/e Vol2 p.2sg\_262]**

**Anterior:-**

- Superior mesenteric vessel
- Root of mesentery

**Posterior**

- Right ureter
- Right psoas major
- Right testicular or ovarian vessels
- IVC
- Abdominal aorta with origin of inferior mesenteric artery

**Superior**

- Head of pancreas with uncinata process.

**Inferior**

- Coils of jejunum

### 433. Correct sequence of uterine blood flow -

a) Uterine A - Arcuate A Radial A Spiral A

b) Uterine A Radial A - Arcuate A Spiral A

c) Uterine A Spiral A Radial A Arcuate A

d) Uterine A Arcuate A → Spiral A - Radial A

Correct Answer - A

**Answer- is'a 'i.e., Uterine A - Arcuate A Radial A Spiral A [Ref: Textbook of OBG p. 3061**

- just Prior to contact with uterus, the uterine artery gives descending uterine artery (vaginal artery) which supply the isthmus, cervix and upper vagina.
- After joining the uterus, the uterine artery ascends along the lateral margin of uterus as ascending uterine artery.
- Ascending uterine artery gives several branches between middle and outer thirds of myometrium. These are called arcuate arteries because of their semicircular course.
- Arcuate arteries give radial arteries which in turn terminate as spiral arteriole.

## 434. Sternocleidomastoid muscle is examined by

a) Turning the head towards the same side

b) Turning the head towards opposite side

c) Shrugging of shoulder

d) Overhead abduction

Correct Answer - B

**Ans. is 'b' i.e., Turning the head towards opposite side [Rel BDC 6h/e Vol.3 p. 89]**

**Contraction of one side of sternocleidomastoid causes :**

- .. Tilting (bending) of head on same side
- ?. Turning (rotation) of face and head on opposite side, which can be appreciated as turning of chin to opposite side

### 435. Stapedius pulls stapes in which direction

-

a) Anterior

b) Superior

c) Inferior

d) Posterior

Correct Answer - D

**Ans. is 'd' i.e., Posterior [Ref: Textbook of auditory processing p. 361**

- Contraction of the stapedius muscle pulls the stapes head in posterior direction.
- Contraction of tensor tympani pulls the malleus and tympanic membrane inward with a lateral to medial motion.
- Contraction of these muscles stiffen the tympanic membrane and ossicular chain thereby reducing the mobility of the middle ear and decreasing the sensitivity of ear to air-conducted sound.

**436. Major central nucleus of sympathetic system is**

a) Nucleus ambiguus

b) Nucleus tractus solitarius

c) Edinger-Westphal nucleus

d) Hypothalamus

Correct Answer - D

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

- The highest seat of regulation of autonomic nervous system (both sympathetic & parasympathetic) is hypothalamus.

### 437. Dangerous area of scalp is -

a) Superficial fascia

b) Aponeurosis

c) Subaponeurotic tissue

d) Pericranium

Correct Answer - C

**Ans. is'c'i.e., Subaponeurotic tissue**

- Loose subaponeurotic areolar tissue (4s layer) is called dangerous area of scalp because it contains emissary veins through which infection in subaponeurotic space may spread readily to intracranial venous sinuses

**438. Which nerve is preserved in dissecting the superficial and deep lobes of parotid gland -**

a) Glossopharyngeal

b) Hypoglossal

c) Lingual

d) Facial

Correct Answer - D

**Ans. is 'd' i.e., Facial [Ref- Anatomy recall by Jared Antevil]**

- The facial nerve separates parotid gland into superficial and deep lobes.
- Mandibular branch of facial nerve is most vulnerable to injury during parotid surgery

### 439. Which intrinsic ocular muscle is supplied by parasympathetic innervation -

a) Superior rectus

b) Superior oblique

c) Constrictor pupillae

d) Dilator pupillae

Correct Answer - C

**Ans. is'c'i.e., Constrictor pupillae [Ref: Gray's 39h/e p. 7101 Intraocular muscles (intraocular muscles)**

- → Intraocular muscles are -
  - A) Muscles of iris
- → There are two types of muscles in iris that control the size of pupil:
  1. The iris sphincter or constrictor pupillae (circular muscles):-

These muscles are innervated by the postganglionic parasympathetic fibres from Edinger Westphal nucleus via 3<sup>rd</sup> nerve and ciliary ganglion. These muscles cause constriction of pupil (Miosis).
  2. The iris dilator or dilator pupillae (radial muscles) → These muscles are innervated by sympathetic system via postganglionic sympathetic fibres for the dilator pupillae from neurons in the superior cervical ganglion. These muscles cause pupillary dilatation (mydriasis).
- B) Ciliary muscles;--> these are innervated by the postganglionic parasympathetic fibers from EWN via 3<sup>rd</sup> nerve and ciliary ganglion. These muscles help in accommodation.

## 440. Lips does not drain into which group of lymph nodes?

a) Submandibular nodes

b) Sublingual nodes

c) Preauricular parotid

d) None of the above

Correct Answer - C

**Ans. is 'c' i.e., Preauricular parotid [Ref: BDC fi/e Vol. 3 p. 72-751**

- → The face possesses three areas from which lymphatic drainage is as follows :-
  1. Upper area, comprising greater part of forehead, lateral 2/3 of eyelids, conjunctiva, lateral part of cheek and parotid area, drains into preauricular (superficial) parotid nodes.
  2. Middle area, comprising central part of forehead, external nose, upper lip, lateral part of lower lip, medial halves of eyelids, medial part of cheek, and greater part of lower jaw, drains into submandibular nodes.
  3. Lower area, including central part of lower lip and the chin, drains into submental nodes.

**441. Secretomotor fibers to parotid glands are through -**

a) Tympanic plexus

b) Geniculate ganglion

c) Greater petrosal nerve

d) None

Correct Answer - A

**Ans. is'A i.e., Tympanic plexus (Ref: BDC @/e Vol. 3 p. 111).**

## 442. Features of facial nerve palsy are all except -

a) Loss of salivation

b) Loss of lacrimation

c) Facial muscle paralysis

d) Loss of taste sensation from posterior tongue

Correct Answer - D

**Ans. is 'd' i.e., Loss of taste sensation from posterior tongue [Ref: Dhingra 5<sup>th</sup>/e p. 105, 106; Gray's 39<sup>th</sup>/e p. 12131**  
**Facial nerve paralysis produces following manifestations :**

→ Weakness of the muscles of facial expression and eye closure. which results in :

1. Absence of nasolabial fold.
  2. Wide palpebral fissure
  3. Epiphora
  4. Drooping of angle of mouth
  5. Loss of wrinkles of forehead
  6. The face sags and is drawn across to the opposite side on smiling.
  7. Voluntary eye closure may not be possible and can produce damage to the conjunctiva and cornea.
- In partial paralysis, the lower face is generally more affected.
  - Loss of taste sensation over anterior 2/3 of the tongue.
  - Intolerance to high-pitched or loud noises, i.e. Hyperacusis (due to stapedius muscle paralysis)
  - Loss of lacrimation and salivation occur

**443. Nerve 3<sup>rd</sup> ventricle is the cavity of -**

a) Mesencephalon

b) Rhombencephalon

c) Diencephalon

d) Telencephalon

Correct Answer - C

**Ans. is 'c' i.e., Diencephalon (Ref: BDC Vol.-3 6h/e p. 324, 441)**

**Part of Brain**

**Cavity**

A)- forebrain (prosencephalon)

Lateral ventricle

i. Telencephalon(cerebrum)

Third ventricle

ii. Diencephalon (Thalamencephalon)

B)- midbrain(mesencephalon)

Cerebral aqueduct

C)- Hindbrain (rhombencephalon)

Fourth Ventricle

#### 444. Oculomotor nucleus is located in -

a) Forebrain

b) Midbrain

c) Pons

d) Medulla

Correct Answer - B

**Ans. is 'b' i.e., Midbrain IRef: BDC 6/e Vol. 3 p' 3501**

- Cranial nerves I, II → Forebrain
- Cranial nerves III, IV → Midbrain
- Cranial nerves V, VI, VII, VIII → Pons
- Cranial nerves IX, X, XI, XII → Medulla

**445. Which of the following is pure sensory nerve ?**

a) Trigeminal

b) Abducent

c) Trochlear

d) Olfactory

Correct Answer - D

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

**Cranial nerves**

Pure sensory	Pure motor	Mixed
	Oculomotor (III)	
	Trochlear (IV)	
Olfactory (I)	Abducent (VI)	Trigeminal (V)
Optic (II)	Vestibulocochlear (VIII)	Facial (VII)    Glossopharyngeal (IX)
	Accessory (XI)	Vagus (X)
	Hypoglossal (XII)	

## 446. Olfactory Great cerebral vein of Galen drains into -

a) Cavernous sinus

b) Basal vein

c) Internal cerebral vein

d) Straight sinus

Correct Answer - D

**Ans. is 'd' i.e., Straight sinus**

- Great cerebral vein of Galen is formed by the union of two internal cerebral veins.
- It is 2 cm long.
- It is drains into the straight sinus.

## 447. Superficial middle cerebral vein drains into -

a) Internal cerebral vein

b) Cavernous sinus

c) Great cerebral vein of Galen

d) Straight sinus

Correct Answer - B

**Ans. is 'b' i.e., Cavernous sinus [Ref Textbook of neuroanatomy p. 189]**

### **Superficial middle cerebral vein**

- It runs along the posterior ramus and stem of lateral sulcus.
- It drains blood from superolateral surface of the cerebral hemisphere into the cavernous sinus.
- It communicates with the superior sagittal and transverse sinus through vein of Trolard and vein of Labbe respectively.

## 448. Major supply of medial surface of cerebral hemisphere

a) Anterior cerebral artery

b) Posterior cerebral artery

c) Middle cerebral artery

d) Posterior inferior cerebellar artery

Correct Answer - A

**Ans. is 'a' i.e., Anterior cerebral artery [Ref: BDC 6th/e Vol. 3 p. 461, 462]**

Cerebral cortex is supplied by branches of all three cerebral arteries. All the three surface receive branches from all three arteries.

**But each surface is supplied predominantly by one artery :?**

1. Middle cerebral artery is the main artery on superolateral surface.
2. Anterior cerebral artery is chief artery on medial surface.
3. Posterior cerebral artery is principal artery on inferior surface

## 449. Which nucleus is not seen in floor of the 4th ventricle -

a) Abducens nucleus

b) Facial nucleus

c) Dorsal vagal nucleus

d) Hypoglossal nucleus

Correct Answer - B

**Ans.is'b'i.e.,Facial nucleus {RefBDC Vol.3 &/e p.410; Last's  
|2n/e p. 482, 483}**

- Medial eminence is present in each side of median sulcus. It presents facial colliculus formed by genu (recurving fibers) of facial nerve looping around abducens nucleus. Facial colliculus lies in pons (i.e. in pontine part of floor).
- Hypoglossal triangle overlying the hypoglossal nucleus and vagal triangle overlying dorsal nucleus of vagus. Both of these triangle lies in the medulla (medullary part of floor)

**450. Ventral tegmental decussation in cerebral peduncle is due to -**

a) Tectospinal tract

b) Tectobulbar tract

c) Vestibulospinal tract

d) Rubrospinal tract

Correct Answer - D

**Ans. is d'ie., Rubrospinal tract [Ref: BDC 6th/e Vol.3 p.398]**

- Ventral tegmental decussation → Formed by decussation of rubrospinal tract.
- Dorsal tegmental decussation → Formed by decussation of tectospinal and tectobulbar tracts.

**451. Oxyntic cells are present in -**

a) Pylorus

b) Cardiac notch

c) Body

d) None

Correct Answer - C

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

- Oxyntic cells are present in principal glands of body and fundus.
- These glands are found in body and fundus. These glands contain mainly chief (peptic or zymogen) cells and parietal (oxyntic) cells. These glands also contain *mucous neck cells, stem cells and enteroendocrine cells (argentaffin cells)*.

## 452. First bone to start ossifying -

a) Femur

b) Tibia

c) Scapula

d) Mandible

Correct Answer - D

**Ans. is'd'i.e., Mandible [Ref: T\*book of anatomy with color Atlas p. 132]**

'The mandible is one of the first bones in the body to start ossifying being next in this respect only to the clavicle..

- Thus, First bone to start ossifying Clavicle. Second bone to start ossifying → Mandible.

### 453. Hilton's law is related to -

a) Venous drainage

b) Blood supply

c) Nerve innervation

d) All of the above

Correct Answer - C

**Ans. is 'c' i.e., Nerve innervation [Rel Textbook operative orthopaedics p. 7861**

- Hilton's law states that nerves crossing a joint supplies that joint by giving branching to that joint

## 454. Spermatogenesis begins at -

a) Birth

b) 5 years

c) Puberty

d) 18 years

Correct Answer - C

**Ans. is 'c' i.e., Puberty [Ref: Clinical embryology 3'd/e p' 311]**

- Spermatogenesis refers to the process of formation of spermatozoa (sperm) from primitive germ cells (spermatogonia)
- spermatogenesis begins at puberty and continues throughout adult life to decline in old age.

**455. Which is not a stage of prophase -**

a) Diakinesis

b) Leptotene

c) Zygotene

d) Arachytene

Correct Answer - D

**Ans. is'd' i.e., Arachytene |Ref: Essentials of medical genetics by A'K' Dutta 4'h/e p' 111**

## 456. Fossa ovalis is a remnant of -

a) Septum primum

b) Septum secundum

c) Septum spurium

d) AV cushion

Correct Answer - A

**Ans. is'a'i.e., Septum primum IRef: Readbeloul**

- Actually 'floor of the fossa ovalis represents septum primum.  
Full fossa ovalis is a remnant of foramen ovale

## 457. Fibrous stroma of liver is derived from -

a) Foregut endoderm

b) Midgut endoderm

c) Hindgut endoderm

d) Septum transversum

Correct Answer - D

**Ans. is'd i.e., Septum transversum Development Of liver**

- Liver is developed from -i) Endoderm of foregut (endodermal diverticulum): Most of the liver (including hepatocytes) is derived from foregut endoderm. ii) Septum transversum mesenchyme (mesoderm) : It gives rise to ligaments of the liver (except ligamentum teres), kupffer cells, hematopoietic cells, sinusoids and fibrous-areolar stroma of liver'
- Ligamentum teres is derived from left umbilical vein.

**458. Heart tube is formed at -**

a) 3 weeks

b) 6 weeks

c) 10 weeks

d) 12 weeks

Correct Answer - A

**Ans. is'a'i.e., 3 weeks [Ref: Embryology by Indu Khurana p. 209]**

'Tubular heart is formed at the end of 3d week"

## 459. Heart tube is formed in

a) Hyaluronic acid secreted by endocardium

b) Chondroitin sulfate secreted by endocardium

c) Hyaluronic acid secreted by myocardium

d) Chondroitin sulfate secreted by myocardium

Correct Answer - C

**Ans-Ans. is'c'i.e., Hyaluronic acid secreted by myocardium**

**[Ref Textbook of Human Embryolog p. 7861**

- Cardiac jelly is a thick extracellular matrix rich in hyaluronic acid. It separates endothelial heart tube from myocardium.
- Cardiac jelly is secreted by myocardium.

## 460. Remnant of umbilical artery

a) Ligamentum arteriosum

b) Ligament teres

c) Ligamentum venosum

d) Medial umbilical ligament

Correct Answer - D

**Ans. is'd'i.e., Medial umbilical ligament {Ref:Garg 2d/e p. 2151}**

<b>Embryonic part</b>	<b>Remnants</b>
Ductus arteriosus	Ligamentum arteriosum
Umbilical artery	Proximal part : - Superior vesical artery. Distal part : - Medial umbilical ligament
Umbilical vein (left)	Ligamentum teres
Ductus venosus	Ligamentum venosum
<i>Septum prim urn</i>	<i>Floor offossa ovalis</i>
Septum seconclum	Annulus ovalis / Limbus fossa ovalis

## 461. False about limbus fossa ovalis -

a) Situated above fossa ovalis

b) In right atrium

c) Derived from septum primum

d) Also called Annulus ovalis

Correct Answer - C

**Ans. is 'c' i.e., Derived from septum primum**

- Limbus fossa ovalis (also called annulus ovalis) is a thickened rim in right atrium, present above the fossa ovalis.
- It represents the *lower free margin of septum secundum*. (not septum primum).

## 462. Sertoli cells are derived from -

a) Genital tubercle

b) Genital swelling

c) Primordial germ cells

d) Germinal epithelium

Correct Answer - D

**Ans. is 'd' i.e., Germinal epithelium [Ref I.B.Singh embryology 9<sup>th</sup>ie p. 278]**

- Testis develops at genital ridge (urogenital ridge).
- 'Primordial germ cells' are developed in the 4th week by proliferation of endodermal cells of the dorsal wall of hindgut (part of yolk sac). The primordial germ cells migrate into genital ridge, where proliferation of both germinal and nongerminal cells leads to formation of gonads.
- Genital ridge is covered by germinal epithelium (previous coelomic epithelium), which proliferates and forms sex cords (primitive seminiferous cords). Large number of sertoli cells are derived from these sex cords.
- Lyedig cells are also derived from sex cord, which in turn is derived from germinal epithelium.

### 463. Prolactin secreting gland develops from -

a) Infundibulum

b) Rathke's pouch

c) Tuber cinereum

d) 3<sup>rd</sup> ventricle

Correct Answer - B

**Ans. is 'b' i.e., Rathke's pouch**

Prolactin is secreted by anterior lobe of pituitary which develops from Rathke's pouch.

## 464. Posterior cardinal vein develops into -

a) Common iliac vein

b) Superior vena cava

c) Internal jugular vein

d) External jugular vein

Correct Answer - A

**Answer- a' i.e., Common iliac vein** fRef: Textbook of embryology p. 786

**Derivatives of posterior cardinal veins, subcardinal veins and supracardinal veins are :**

**1. Inferior vena cava is derived from :?**

1. Hepatic segment of IVC is derived from : (i) right hepatic cardiac channel, and (ii) anastomotic channel between subcardinal vein and right hepatic cardiac channel.
2. Renal segment of IVC is derived from right subcardinal vein. This part receives both renal and suprarenal veins.
3. Post renal segment of IVC (major part of IVC) is formed by (i) anastomosis between right supracardinal and subcardinal veins, (ii) right supracardinal vein (lower part), and (iii) right posterior cardinal vein (lowest part).

**2. Gonadal veins develop from subcardinal veins (distal part below inter-subcardinal or renal anastomosis).**

**3. Suprarenal veins develop from subcardinal veins (proximal part above inter-subcardinal or renal anastomosis).**

**4. Right common iliac vein is derived from the right posterior cardinal vein (most caudal part).**

**5. Left common iliac vein develops from transverse anastomosis between lower end of posterior cardinal veins.**

**6. Right renal vein is a *mesonephric vein* that drains into renal segment of IVC (which is derived from the upper part of right subcardinal vein).**

**7. Left renal vein develops from three sources : (i) mesonephric vein (drain into left subcardinal vein), (ii) left subcardinal vein (small part), and (ii) pre-aortic inter subcardinal anastomosis**

## 465. Superior vena cava develops from -

a) Right anterior cardinal vein

b) Left anterior cardinal vein

c) Left common cardinal vein

d) Right subcardinal vein

Correct Answer - A

**Ans. is 'a' i.e., Right anterior cardinal vein** | Ref: Textbook of embryology p. 7861

- Superior vena cava (SVC) is derived from
  - 1. right anterior cardinal vein (proximal to brachiocephalic anastomosis), and
  - 2. right common cardinal vein.

**466. Which of the following is a derivative of Rathke's pouch -**

a) Pars tuberalis

b) Neurohypophysis

c) Posterior pituitary

d) Pineal gland

Correct Answer - A

**Ans. is 'a' i.e., Pars tuberalis IRef: Textbook of embryology p. 7861**

The Rathke's pouch is an ectodermal upgrowth from the stomodaeum in front of buccopharyngeal membrane

**The derivatives of Rathke's pouch give rise to the various components of the anterior pituitary:**

1. Anterior lobe
2. Pars tuberalis
3. Pars distalis
4. Pars intermedia

**467. Which of glial cell is mesodermal in origin -**

a) Macrogial cells

b) Microglial cells

c) Oligodendrocytes

d) Ependymal cells

Correct Answer - B

**Ans. is'b'i.e., Microglial cells**

- Microglial cells are derived from mesenchymal (mesodermal) cells

**468. What structure passes through the quadrangular space ?**

a) Axillary nerve

b) Radial nerve

c) Median nerve

d) Brachial Artery

Correct Answer - A

**Ans. is 'a' i.e., Axillary nerve |Ref Campbell's 12h/e p. 22131**

- Axillary nerve and posterior circumflex humeral vessels are transmitted through quadrangular space

**469. Lower limit of superior mediastinum is at which level -**

a) T<sub>i</sub>

b) T1

c) T<sub>8</sub>

d) T10

Correct Answer - B

**Ans. is 'b' i.e., T1 [Ref. BDC &/e vol.I p. 245]**

- Mediastinum is intrapleural space bounded on either side by mediastinal pleura, anteriorly by sternum and posteriorly by thoracic vertebral column.
- It is divided into superior and inferior mediastinum by a line passing through sternal angle and lower border of T<sub>4</sub> vertebra.

**470. Which of the following is not the muscles of superficial anterior compartment of forearm ?**

a) FDS

b) FPL

c) FCR

d) Palmaris longus

Correct Answer - B

**Ans. B. FPL**

Muscles of superficial anterior compartment of forearm: ECR, FDS, FCU, Pronator teres, palmaris longus

Muscles of deep anterior compartment of forearm: FDP, FPL, Pronator quadratus.

**471. In case of aberrant obturator artery, it arises most commonly from ?**

a) Common iliac artery

b) Femoral artery

c) Profunda femoris artery

d) Inferior epigastric artery

Correct Answer - D

**Ans. D. Inferior epigastric artery**

**472. Chief artery of lateral surface of cerebral hemisphere ?**

a) Anterior cerebral artery

b) Posterior cerebral artery

c) Middle cerebral artery

d) Posterior inferior cerebellar artery

Correct Answer - C

**Ans. C. Middle cerebral artery**

**473. Which of the following is remnant of distal umbilical artery?**

a) Ligamentum Teres

b) Superior Vesical artery

c) Medial umbilical Ligament

d) Ligamentum arteriosum

Correct Answer - C

**Ans.C. Medial umbilical Ligament**

**Remnant of umbilical artery:-**

- .. Proximal part : Superior vesical artery
- ?. Distal part: Medial umbilical ligament

## 474. Female urethra develops from -

a) Urogenital sinus

b) Mesonephric duct

c) Ureteric bud

d) Metanephric Blastema

Correct Answer - A

**Ans. A. Urogenital sinus**

The female urethra is mainly derived from the urogenital sinus while the urethral plate forms the vestibule and labia minora.

**475. All of the following help in formation of IVC except -**

a) The posterior intercardinal anastomosis

b) Terminal portion of right vitelline vein

c) Segment of right cardinal vein

d) Subcardinal sinus

Correct Answer - D

**Ans. D. Subcardinal sinus**

**The inferior vena cava is composed of (from caudal to cranial):**

1. Posterior intercardinal anastomosis.
2. The caudal portion of the right supracardinal vein.
3. The right anastomosis between the supracardinal and the subcardinal veins.
4. A segment of the right subcardinal vein.
5. The anastomosis between the right subcardinal and right vitelline veins.
6. The terminal portion of the right vitelline vein.

**476. Kidney parenchyma is derived from -**

a) Ureteric bud

b) Mesonephros

c) Metanephros

d) Paramesonephros

Correct Answer - C

**Ans. C. Metanephros**

Metanephros : This system will form the nephrons and parenchyma of the definitive kidney.

**477. Leptotene and pachytene are stages of which phases of meiosis -**

a) Prophase I

b) Metaphase I

c) Anaphase II

d) Telophase II

Correct Answer - A

**Ans. A. Prophase I**

**Meiosis 1 is divided into following phases :-**

1) Prophase 1: It is further divided into following stages:-

1. Leptotene
  2. zygotene
  3. Pachytene
  4. Diplotene
  5. Diakinesis
- 2) Metaphase 1
  - 3) Anaphase 1
  - 4) Telophase 1

## 478. Pelvic kidneys are due to all except ?

a) Inability to ascend during fetal life

b) Fusion of the lower poles

c) Being blocked by branches of the aorta

d) p53 mutation

Correct Answer - D

**Ans. D. p53 mutation**

### **Pelvic kidney**

- A fetal pelvic kidney is a condition that results when the kidneys fail to ascend to their normal position above the waist and remain in the pelvis because they are blocked by blood vessels in the aorta.
- Developing kidneys may also fuse together causing what is known as a 'horseshoe kidney'
- A fetal pelvic kidney or horseshoe kidney is generally diagnosed by ultrasound (sonogram) examination before birth.
- Evaluation of the kidneys is part of the routine ultrasound examination done by many obstetricians as part of their prenatal care around the 20s week of pregnancy.

**479. Crypta magna develops from which pouch?**

a) 1<sup>st</sup>

b) 2<sup>nd</sup>

c) 3<sup>rd</sup>

d) 4<sup>th</sup>

Correct Answer - B

**Ans. B. 2<sup>nd</sup>**

Medial surface of each tonsil has 15-20 crypts, the largest of which is called Intratonsillar cleft or crypto magna (which represents persistence of the ventral portion of the second pharyngeal pouch).

**480. Which of the following is a traction epiphysis?**

a) Distal Radius

b) Mastoid process

c) Tibial Condyles

d) Coracoid Process

Correct Answer - B

**Ans. B. Mastoid process**

**481. All of the following are true about the liver except ?**

a) It is covered by Glisson's capsule

b) Stellate cells are present in the space of Disse

c) Kupfer cells are the defense cells

d) The lobules in the liver are pentagonal

Correct Answer - D

**Ans. D. The lobules in the liver are pentagonal**

Liver has hexagonal lobules

## 482. Hering's canal is present in ?

a) Spleen

b) Liver

c) Kidney

d) Lung

Correct Answer - B

**Ans, B. Liver**

The canal of Hering or intrahepatic bile ductules are part of outflow system of exocrine bile product from the liver.

They are found between the bile canaliculi and interlobular bile ducts near the outer edge of liver lobule.

### 483. Herring's bodies are present in?

a) Pars tuberalis

b) Pars intermedia

c) Neurohypophysis

d) Pars terminalis

Correct Answer - C

**Ans. C. Neurohypophysis**

Herring bodies or neurosecretory bodies are structures found in the posterior pituitary (neurohypophysis).

**484. All of the following are true about thymus except?**

a) The cortical portion is mainly composed of lymphocytes

b) The medulla contains Hassall's Corpuscles

c) It is derived from the fourth Pharyngeal pouch

d) It undergoes atrophy puberty onwards

Correct Answer - C

**Ans. C. It is derived from the fourth Pharyngeal pouch**

The thymus is a specialized primary lymphoid organ of the immune system. Within the thymus, T cells or T lymphocytes mature.

The thymus is largest and most active during the neonatal and pre-adolescent periods. By the early teens, the thymus begins to atrophy and thymic stroma is mostly replaced by adipose (fat) tissue

Thymus is derived from the third pharyngeal pouch

**485. Which of the following layer is absent in the esophagusa -**

a) Adventitia

b) Serosa

c) Muscularis propria

d) Mucosa

Correct Answer - B

**Ans. B. Serosa**

The esophagus also has an adventitia, but not a serosa

**486. Which is the most abundant cartilage-**

a) Hyaline cartilage

b) Elastic cartilage

c) Fibrocartilage

d) None

Correct Answer - A

**Ans. A. Hyaline cartilage**

**487. What is the lining of the lacrimal gland alveoli?**

a) Ciliated columnar cells

b) Pyramidal cells

c) Non keratinizing squamous epithelium

d) None

Correct Answer - B

**Ans. B. Pyramidal cells**

Alveoli of the gland are lined by pyramidal cells, which show lightly stained apical secretary granules.

**488. What type of muscles are medial two lumbricals?**

a) Unipennate

b) Bipennate

c) Multipennate

d) None

Correct Answer - B  
**Ans. B. Bipennate**

**489. What is the level of the spine of scapula?**

a) T7

b) T10

c) T4

d) T2

Correct Answer - C

**Ans. C. T4**

Spine of scapula is at T3T4level

**490. Which of the following muscles carries out shoulder abduction from 15 to 90 degrees?**

a) Suprapinatus

b) Trapezius

c) Deltoid

d) Serratus Anterior

Correct Answer - C

**Ans. C. Deltoid**

**491. Which muscle acting on the thumb has dual nerve supply?**

a) Flexor Pollicis Longus

b) Flexor Pollicis brevis

c) Adductor Pollicis

d) Opponens Pollicis

Correct Answer - B

**Ans. B. Flexor Pollicis brevis**

## 492. What is Wartenberg's sign?

- a) Inability to maintain Intrinsic plus position
- b) Inability to adduct small finger against the ring finger
- c) Inability to grasp a book between the thumb and index finger
- d) Inability to move the middle finger sideways

Correct Answer - B

**Ans, B. Inability to adduct small finger against the ring finger**

Wartenberg's sign is inability to adduct the small finger in against the ring finger due to weakness of palmar interosseous muscles.

### 493. Sensory region of the ulnar nerve is?

a) Tip of little finger

b) Tip of index finger

c) 1st web space

d) Lateral upper aspect of arm

Correct Answer - A

**Ans. A. Tip of little finger**

**494. Pulp of the index finger is supplied by**

a) Median nerve

b) Radial nerve

c) Ulnar nerve

d) Axillary nerve

Correct Answer - A

**Ans, A. Median nerve**

## 495. Low radial nerve [just after spiral groove] palsy does not produce ?

a) Loss of wrist extention

b) Loss of elbow extention

c) Loss of finger extention

d) Loss of thumb extention

Correct Answer - B

### **Ans. B. Loss of elbow extention**

- Low radial nerve palsy
  - Injury is after the spirid groove.  
**Low radial nerve palsy may be of two types :**
    - i) Type I: - Injury occurs between the spiral groove and elbow joint.  
Muscles involvement is : -
      1. Elbow ertensors (Triceps, anconeus) are spared.
      2. Wrist, elbow and finger extensors are paralysed.
      3. Sensory loss in first web space (on dorsal side)
    - ii) Type II: - Injury occurs below the elbow joint.
      1. Elbow extensors (triceps, anconeus) and wrist extensors (ECRL) are spared.
      2. Finger extensors (extensor digitorum, extensor digiti minimi, extensor indicis) and thumb extensors (extensor pollicisc longus & brevis) are paralysed.
      3. Sensory loss in first web space (on dorsal side).
- If lesion is low**
- a) Type 1**
- Wrist drop, thumb drop and finger drop.
  - Elbow extension is preserved.
  - Sensory loss over the dorsum of first web space.

**b) Type 2**

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

**496. Infraspinous fossa of scapula contains which of the following muscles?**

a) Subscapularis

b) Infraspinatus

c) Teres major

d) Supraspinatus

Correct Answer - B

**Ans. B. Infraspinatus**

Infraspinatus attaches medially to the infraspinous fossa of the scapula and laterally to the middle facet of the greater tubercle of the humerus.

## 497. Coracoacromial ligament resists which movements?

a) Upward displacement of humeral head

b) Abduction of shoulder

c) Inferior displacement of humerus

d) External rotation

Correct Answer - A

### **Ans. A. Upward displacement of humeral head**

The coracoacromial ligament is a flat triangular band that plays a supportive role for the shoulder joint.

Coracoacromial prevents Upward displacement of humeral head.

It has two part, conoid (medial) and trapezoid (lateral). The weight of the upper limb is transmitted to the medial two-third of the clavicle and thence to the axial skeleton through the coraco-clavicular ligment.

## 498. Coracohumeral ligament inserts on?

a) Greater tuberosity

b) Lesser and greater tuberosities

c) Anatomical neck of humerus

d) Bicipital groove

Correct Answer - B

**Ans. B. Lesser and greater tuberosities**

**Coracohumeral ligament :**

- An extraarticular ligament on the lateral surface of coracoid and inserts into the greater and lesser tuberosities, spanning the bicipital groove.
- Sectioning of coracohumeral ligaments produces anteroinferior instability.
- Represents folded thickening of glenohumeral capsule in area of rotator interval between subscapularis & supraspinatus.
- W/body upright & arm in dependent position, coracohumeral & MGHL play important roles in resisting inf translation.

## 499. What is the action of anconeus?

a) Primary elbow extensor

b) Assists Extension of elbow

c) Wrist extension

d) Thumb Abduction

Correct Answer - B

**Ans. B. Assists Extension of elbow**

Anconeus = Its role in elbow extension is trivial in humans. It assists in extension of the elbow, where the triceps brachii is the principal agonist, and supports the elbow in full extension.

## 500. Which muscle helps in climbing a tree ?

a) Latissimus Dorsi

b) Rhomboideus

c) Trapezius

d) Levator scapulae

Correct Answer - A

**Ans. A. Latissimus Dorsi**

**Climbing of tree is helped by:**

1. Latissimus Dorsi

2. Pectoralis major

Latissimus Dorsi is also known as "climber's muscle" or "Tree climbing muscle".

**501. Posterior interosseus artery is a branch of ?**

a) Common interosseus artery

b) Radial artery

c) Median artery

d) Brachial artery

Correct Answer - A

**Ans. A. Common interosseus artery**

The common interosseous artery, about 1 cm. in length, arises immediately below the tuberosity of the radius from the ulnar artery.

**502. Which muscle protects the brachial plexus in case of clavicle fractures?**

a) Subclavius

b) Supraspinatus

c) Subscapularius

d) Teres Minor

Correct Answer - A

**Ans. A. Subclavius**

The subclavius protects the underlying brachial plexus and subclavian vessels from a broken clavicle.

### 503. Which of the following is true about deep palmar arch?

a) Mainly formed by the radial artery

b) Ulnar artery has no contribution to it

c) It gives off 5 perforating branches

d) It does not anastomose with the superficial palmar arch

Correct Answer - A

**Ans. A. Mainly formed by the radial artery**

**Deep palmar arch**

- It lies across the base of metacarpal bones. It is formed mainly by radial artery and completed by a deep branch of the ulnar artery.
- Its branches are:-**
- Three palmar metacarpal arteries
  - Three perforating arteries
  - Recurrent branches
  - The deep palmar arch lies deep to the oblique head of adductor pollicis, long flexor tendon, and lumbrical muscles and passes across the base of metacarpal and interossei.

**504.**

## Which part of scapula can be palpated in the infraclavicular fossa?

a) Coracoid process

b) Spine of scapula

c) Inferior angle

d) Supraspinous fossa

Correct Answer - A

### **Ans. A. Coracoid process**

The coracoid process is a thick curved process attached by a broad base to the upper part of the neck of the scapula; it runs at first upward and medial ward; then, becoming smaller, it changes its direction, and projects forward and lateralward.

It is palpable just below the clavicle.

## 505. Flexor carpi radialis inserts into ?

a) Base of 5th metatarsal

b) Base of 2<sup>nd</sup> and 3<sup>rd</sup> metacarpal

c) Scaphoid and trapezium

d) Capitate and hamate

Correct Answer - B

**Ans., B. Base of 2<sup>nd</sup> and 3<sup>rd</sup> metacarpal**

**Flexor carpi radialis**

- Origin: Medial epicondyle of the humerus.
- Insertion: Base of second and third metacarpals.
- Nerve supply: Median nerve.
- Action: Pronator of the forearm, weak flexor of elbow.

## 506. What is true about lateral tibial condyle ?

a) Iliotibial tract is attached to the lateral condyle of tibia

b) Ligamentum patellae inserts on it

c) Medial collateral ligament is attached to it

d) Semimembranosus is attached to it

Correct Answer - A

**Ans. A. Iliotibial tract is attached to the lateral condyle of tibia**

\* Tibia is the second longest bone (after femur).

\* Proximal end (upper end)

- Proximal (upper) end of tibia includes medial and lateral condyles, forming tibial plateau. It also includes tibial tuberosity and intercondylar area (area between medial and lateral condyle).

- Distal end

\* Medial malleolus gives attachment to deltoid ligament (medial collateral ligament) of ankle.

**507. Weakness of extensor Hallucis longus is due to which nerve root mainly?**

a) L5

b) L4

c) S1

d) S2

Correct Answer - A

**Ans. A. L5**

**508. Which of the following is common between the medial and lateral plantar arch?**

a) Flexor Digitorum Brevis

b) Plantar Fascia

c) Spring Ligament

d) Deltoid Ligament

Correct Answer - B

**Ans, B. Plantar Fascia**

Plantar fascia acts as a tie beam for both medial and lateral plantar arches.

**509. Which tendon is lodged in the groove on posterior surface of lateral malleolus?**

a) Peroneus longus

b) Tibialis anterior

c) Tibialis posterior

d) Flexor Hallucis Longus

Correct Answer - A

**Ans, A. Peroneus longus**

Peroneus longus ends in a long tendon, which runs behind the lateral malleolus, in a groove common to it.

**510. All of the following are true about tibialis anterior except ?**

a) It is supplied by the superficial peroneal nerve

b) It dorsiflexes the foot

c) It is closely related to the anterior tibial vessels

d) It inserts on the medial cuneiform

Correct Answer - A

**Ans. A. It is supplied by the superficial peroneal nerve**

**Tibialis anterior**

- It is situated on the lateral side of the tibia; it is thick and fleshy above, tendinous below.
- The tibialis anterior overlaps the anterior tibial vessels and deep peroneal nerve in the upper part of the leg.

## 511. Attachment on posterior surface of sacrum?

a) Multifidus Lumborum

b) Iliacus

c) Coccygeus

d) Piriformis

Correct Answer - A

**Ans, A. Multifidus Lumborum**

**Attachements on sacrum**

**A) Posterior Surface**

**Multifidus lumborum –**

- The deepest muscle arising from the sacrum.
- Some of its fibers cover the upper two sacral foramina.
- This muscle attaches to the transverse processes of the superior vertebrae and is therefore able to help stabilize the spine.

**Erector spinae –**

- Partly arises from the posterior sacrum and the sacrospinous ligament.
- It is essential in achieving extension and lateral bending of the head and vertebral column

## 512. Structures passing through sacral hiatus are ?

a) S4 nerve root

b) S2 nerve root

c) S3 nerve root

d) S5 nerve root

Correct Answer - D

**Ans. D. S5 nerve root**

**Sacral hiatus**

- The sacral hiatus corresponds to the posterior caudal opening at the end of the sacral canal, which usually occurs at the fifth sacral vertebra (S5), at the posterior surface of the sacrum.

### 513. Longest cutaneous nerve in body ?

a) Lateral cutaneous nerve of thigh

b) Medial cutaneous nerve of thigh

c) Saphenous nerve

d) Sural nerve

Correct Answer - C

**Ans, C. Saphenous nerve**

The saphenous branch of the femoral nerve (saphenous nerve) is the longest cutaneous nerve. It runs with the great saphenous vein in front of medial malleolus and supplies the skin of anteromedial aspect of the leg and medial border of the foot. The saphenous nerve may be damaged in front of the medial malleolus during venesection of the long saphenous vein.

Therefore, femoral nerve damage can cause sensory loss over the area of the great saphenous vein in the leg.

## 514. Oblique popliteal ligament is derived from ?

a) Semitendinosus

b) Biceps femoris

c) Adductor magnus

d) Semimembranosus

Correct Answer - D

**Ans, D. Semimembranosus**

**Oblique popliteal ligament**

- It is an expansion from the tendon of semimembranosus attachment to intercondylar line of femur.
- It is closely related to popliteal artery and is pierced by middle genicular vessels and nerve and the terminal part of the posterior division of the obturator nerve.

**515. Lateral border of the foot receives its sensory supply from ?**

a) Saphenous nerve

b) Sural nerve

c) Deep peroneal nerve

d) Sciatic nerve

Correct Answer - B  
**Ans. B. Sural nerve**

**516. All of the following is included in chest wall except?**

a) Ribs

b) Thoracic Vertebrae

c) Sternum

d) Lumbar vertebrae

Correct Answer - D

**Ans, D. Lumbar vertebrae**

**517. Respiratory bronchioles are formed from ?**

a) Principal bronchus

b) Terminal bronchioles

c) Tertiary Bronchus

d) Lobar bronchioles

Correct Answer - B

**Ans, B. Terminal bronchioles**

Terminal bronchiole emnate into respiratory bronchioles.

Repiratory bronchioles proceed into the alveolar ducts, which immediately branch into alveolar sacs (alveoli).

**518. Segment of bronchi distal to primary bifurcation?**

a) Primary bronchi

b) Terminal bronchiole

c) Respiratory bronchiole

d) Sencondary bronchi

Correct Answer - A

**Ans. A. Primary bronchi**

**519. The cricopharyngeal sphincter is how far from the central incisor?**

a) 15cm

b) 25cm

c) 40cm

d) 50cm

Correct Answer - A

**Ans, A. 15cm**

At the level of T10 vertebra, its passage through esophageal hiatus of diaphragm lower esophageal sphincter- 37.5-40 cm (f5-f6 inches) from incisor

**520. Which of the following structures is related to the esophagus 22.5cm from the incisor teeth?**

a) Arch of aorta

b) Right principal broncus

c) Thoracic Duct

d) Azygous Vein

Correct Answer - A

**Ans, A. Arch of aorta**

2d constriction is at T4 level where arch of aorta crosses esophagus.

## 521. Thoracic duct opens into systemic circulation at?

a) junction of SVC and left brachiocephalic vein

b) Junction of left internal jugular and left subclavian vein

c) Directly into coronary sinus

d) Into azygous vein

Correct Answer - B

**Ans. B. Junction of left internal jugular and left subclavian vein**

Thoracic duct begins as a continuation of the upper end of the cisternachy linear the lower border of T12 vertebra and enters the thorax through the aortic opening of diaphragrn (at T12). It then ascends through the posterior mediastinum and at T5 level crosses from right side to the left side and ascends along left margin of oesophagus to enter the neck. At the level of C7 vertebrae, arches towards left side to open into left brachiocephalic vein at the angle of union of left subclavian and left internal jugular veins.

## 522. Sympathetic supply of the heart is from ?

a) Vagus

b) Thoracic sympathetic fibres [T1 to T5]

c) Lumbar sympathetic fibres

d) Cervical ganglion

Correct Answer - B

**Ans, B. Thoracic sympathetic fibres [T1 to T5]**

**523. Which of the following are cusps of the aortic valves?**

a) Left, right and Anterior

b) Anterior, Right and Posterior

c) Posterior, Left and Right

d) Anterior, Posterior and Left

Correct Answer - C

**Ans, C. Posterior, Left and Right**

The aortic valve is a semilunar valve with three cusps which include left, right and posterior.

## 524. Which is the widow's artery in myocardial infarction?

a) Left anterior descending artery

b) Right coronary artery

c) Posterior interventricular artery

d) Left circumflex artery

Correct Answer - A

**Ans, A. Left anterior descending artery**

The anterior interventricular branch of the left coronary artery, (also left anterior descending artery (LAD), or anterior descending branch) is a branch of the left coronary artery.

Occlusion of this artery is often called the widow-maker infarction and hence this artery is called a widow's artery.

**525. Which of the following passes posterior to the hilum of the lung?**

a) Vagus

b) Phrenic nerve

c) SVC

d) Right atrium

Correct Answer - A

**Ans, A. Vagus**

**526. What is the level of the pulmonary valve?**

a) 3rd intercostal space

b) 4th costal cartilage

c) 3rd costal cartilage

d) 2nd intercostal space

Correct Answer - C

**Ans, C. 3rd costal cartilage**

**527. Lower limit of the inferior border of the lung in the midaxillary line is ?**

a) 6<sup>th</sup> rib

b) 8<sup>th</sup> rib

c) 10<sup>th</sup> rib

d) 12<sup>th</sup> rib

Correct Answer - B

**Ans, B. 8<sup>th</sup> rib**

The lower limit of the inferior border of the lung is 2 ribs above the reflection of the pleural.

In the midaxillary line the pleura reflects at the 10<sup>th</sup> rib and hence the lower limit of the lung is 8<sup>th</sup> rib.

## 528. Great cardiac vein lies in ?

a) Tricuspid valve

b) Anterior interventricular sulcus

c) Posterior interventricular sulcus

d) None

Correct Answer - B

**Ans. is 'B' i.e., Anterior interventricular sulcus** [Ref **BDC** 4<sup>th</sup>/e Vol. I, p. 251-252; Keith Moore Clinical Anatomy hlth/e p. 136-137; Snell's Clinical Anatomy 9<sup>th</sup>/e p. 121]

- (Atrioventricular) sulcus → Great cardiac vein, coronary sinus, Small cardiac vein, RCA, LCX.
- Anterior interventricular sulcus → Great cardiac vein, left anterior descending (interventricular) artery.
- Posterior interventricular sulcus → *Middle cardiac vein*, Posterior interventricular branch of RCA.

## 529. Apex at of the lung lies at what level?

- a) Above the clavicle
- b) Below the clavicle
- c) At the level of the clavicle
- d) None

Correct Answer - A

**Ans. is 'a' i.e., Above the clavicle [Ref BDC 4<sup>th</sup>ie p. 222-228]**

Apex lies in the inlet of thorax, 2-5 cm above the clavicle. It is related *anteriorly* to subclavian artery and vein. Posteriorly it is separated from neck of first rib by (from medial to lateral) sympathetic trunk, first posterior intercostal vein, superior intercostal artery, and ascending branch of ventral ramus of 1<sup>st</sup> thoracic nerve.

### 530. Diaphragm is supplied by ?

a) Phrenic nerve

b) C2,C3,C4 Roots

c) Thoracodorsal nerve

d) Long thoracic nerve

Correct Answer - A

**Ans. is 'a' i.e., Phrenic nerve** [Ref BDC 6<sup>th</sup>/e Vol I p. 192, fig. 12.12]

**Nerve supply**

- **Motor :- Phrenic nerve (C3C4C5).**
- **Sensory :- i) centrally by phrenic nerve.**
- **Peripherally by lower 6 intercostal nerves.**

**531. Midpoint between suprasternal notch and pubic symphyses passes through which plane?**

a) Transpyloric plane

b) Transtuberular plane

c) Trnasxiphoid plane

d) None

Correct Answer - A

**Ans. is 'a' i.e., Transpyloric plane** [Ref BDC Vol-2 6<sup>th</sup>/e p. 229]

Anterior abdominal wall is divided into **9 regions** with the help of two vertical and two horizontal planes.

**The horizontal planes include : -**

- 1. **Transpyloric plane (of Adison) :-** It lies midway **between the suprasternal notch and pubic symphysis. It passes anteriorly through tips of 9<sup>h</sup> costal cartilage and posteriorly through lower border of L<sub>1</sub> vertebra.** Organs present at this level are **hilum of kidney, pylorus of stomach, beginning of duodenum, neck of pancreas, fundus of gall bladder** and origin of SMA.

- 2. **Transtuberular plane :-** It connects the tubercles of iliac crests and pass through upper border of L<sub>5</sub> vertebra.

The two **vertical planes** are right and left **lateral planes** passing through midinguinal point (also called as **midinguinal plane or midclavicular plane**).

**The nine regions from above downwads are -**

- 1. In middle :- Epigastrium, umblical, hypogastrium.
- 2. **On right side :-** Right hypochondrium, right lumbar, and right inguinal

(iliac) regions.

3. **Left side :- Left** hypochondrium, left lumbar and left inguinal (iliac) regions.

**532. Muscle lying between anterior and middle layer of thoracolumbar fascia is ?**

a) Psoas major

b) Quadratus Lumborum

c) Obdurator internus

d) External oblique

Correct Answer - B

**Ans. is 'b' i.e., Quadratus Lumborum** [Ref BDC 6<sup>th</sup> le Vol. 2 p. 343; Snell 9<sup>th</sup> le p. 695]

**Quadratus lomborum** is enclosed between anterior and middle layers. **Erector spinae (paraspinal muscle)** is enclosed **between** middle and posterior layer.

### 533. Anterior Rectus Sheath just above pubic symphysis is formed by ?

- a) External Oblique Aponeurosis
- b) The aponeurosis of three muscles including External Oblique, Internal Oblique, and Transversus Abdominis
- c) Linea Alba
- d) Internal Oblique only

Correct Answer - B

**Ans. is 'B' i.e., Aponeurosis of three muscles including External Oblique, Internal Oblique, and Transversus Abdominis**

- The anterior wall just above the symphysis pubis (area below the arcuate line) → is formed by aponeurosis of all three muscles (external oblique, internal oblique, transversus abdominis).
- Three aponeurotic layers forming rectus sheath of both sides interlace with each other to form a tendinous raphe, Linea alba. It extends from the xiphoid process to pubic symphysis.
- Linea alba is narrow and indistinct below the umbilicus, as two recti lie in close contact. Linea alba broadens out above the level of the umbilicus.

### 534. Right suprarenal vein drains into ?

a) Inferior vena cava

b) Right renal vein

c) Left renal vein

d) Accessory Hemiazygous vein

Correct Answer - A

**Ans. is 'a' i.e., Inferior vena cava**

Arterial supply of adrenal gland is by three arteries:-

1. Superior suprarenal artery (branch of the inferior phrenic artery);
2. Middle suprarenal artery (branch of abdominal aorta); and
3. inferior suprarenal artery (branch of the renal artery).

Venous drainage is through the suprarenal veins.

Right suprarenal (adrenal) vein drains into IVC and left suprarenal vein drains into the left renal vein and then into IVC.

Lymphatics from suprarenal glands drain into lateral aortic (para-aortic) nodes.

**535. Which of the following is not derived from the external oblique aponeurosis?**

a) Inguinal Ligament

b) Lacunar ligament

c) Line Semilunaris

d) Pectineal Ligament

Correct Answer - C

**Ans. is 'c' i.e., Line Semilunaris [Ref BDC 6<sup>th</sup>/e Vol 2 p. 343; Snell 9<sup>1</sup>Ve p. 695]**

**External oblique → Inguinal (Poupart's) ligament**

- Lacunar ligament Mnemonic : IPL
- Pectineal (cooper's) ligament
- Superficial inguinal ring
- External spermatic fascia
- Internal oblique → Cremasteric fascia & muscle
- Along with tendon of transversus abdominis forms conjoint tendon

## 536. Stomach wall is mainly drained by all lymphnodes except?

a) Pyloric nodes

b) Short gastric vessel nodal group

c) Right gastroepiploic nodes

d) Inguinal nodes

Correct Answer - D

**Ans. is 'd' i.e., Inguinal nodes [Ref Gray's anatomy 20<sup>th</sup> edition]**

**The stomach is drained by four groups of lymph nodes :**

1. Left gastric arterial nodal group, which follows the left gastric artery and drain into the celiac nodes. They drain the lesser curvature of the stomach to the left.
2. Short gastric and left gastroepiploic vessels nodal group. The lymphatic vessels which drain the left side of the greater curvature of the stomach follows these vessels and drain into the pancreaticosplenic group of nodes.
3. Right gastroepiploic nodes, which drain the right half of the greater curvature of stomach as far as the pylorus
4. Pyloric nodes which drains the pyloric part of stomach to the hepatic , pyloric and left gastric nodes.

**All the vessels enter into the celiac node. From these nodes they pass into the intestinal lymph trunks, which then enter the cisterna chyli or the abdominal confluence of lymph trunks. The cisterna chyli drains into the thoracic duct.**

### 537. All lymph of stomach drains into ?

a) Pyloric nodes

b) Short gastric vessel nodal group

c) Right gastroepiploic nodes

d) Coeliac nodes

Correct Answer - D

**Ans. 'D' i.e., Coeliac nodes**

All the vessels enter into the celiac node.

From these nodes, they pass into the intestinal lymph trunks, which then enter the cisterna chyli or the abdominal confluence of lymph trunks.

The cisterna chyli drains into the thoracic duct.

### 538. Gall bladder is related to which segment of the liver?

a) I

b) II

c) III

d) IV

Correct Answer - D

**Ans. is 'd' i.e., IV [Ref Gray's 40<sup>th</sup> le p. 1163-1167; Sabiston 18<sup>th</sup>/e p. 1584]**

- The gall bladder lies on the inferior surface of the liver closely related to segment IV or the quadrate lobe.
- Anatomically liver is divided into a large right lobe and a small left lobe by line of attachment of falciform ligament (anterosuperiorly), fissure for ligamentum teres (inferiorly), and fissure for ligamentum venosum (posteriorly).
- Right lobe is much larger and forms five sixth of liver and left lobe forms only one sixth. Caudate lobe and quadrate lobe are parts of anatomical right lobe.
- 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.
- 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.

### 539. Which segment of liver drains on both sides ?

a) I

b) II

c) III

d) IV

Correct Answer - A

**Ans. is 'A' i.e., I**

**Caudate lobe (segment I)**

- It is situated on the posterior surface of the right lobe.
- It is bounded on right by a groove for IVC, on left by fissure for ligamentum venosum, and inferiorly by porta hepatis (containing hepatic artery, portal vein, hepatic duct bile duct, nerve plexus, and lymphatics).
- Just behind the porta hepatis, the caudate lobe is connected to the rest of the right lobe by the caudate process.
- There is a small rounded elevation to the left, called the papillary process.
- Caudate lobe lies in the superior recess of lesser sac and is related to the crura of the diaphragm, right inferior phrenic artery, and coeliac trunk.
- Caudate lobe (anatomical part of the right lobe) belongs physiologically to both right and left lobes because it receives blood from the right and left hepatic arteries; right and left branches of the portal vein, and drains bile into both the right and left hepatic duct. Thus it is considered as the physiologically independent lobe.

## 540. Caudate lobe of the liver - True is?

a) It receives blood supply from both right and left hepatic arteries

b) It is Segment II of the liver

c) It is situated on the anterior surface of liver

d) It lies between the aorta and ligamentum venosum

Correct Answer - A

**Ans. is 'a' i.e., It receives blood supply from both right and left hepatic arteries [Ref Ramesh Babu p. 249]**

Caudate tube (segment I) is situated on posterior surface of liver between IVC & ligamentum venosum. It receives blood supply from right & left arteries.

## 541. Superior border of epiploic foramen formed by -

a) Caudate lobe

b) Hepatic artery

c) Bile duct

d) IVC

Correct Answer - A

**Ans. is 'a' i.e., Caudate lobe**

Epiploic foramen (foramen of Winslow or aditus to lesser sac) is a slit-like opening through which lesser sac communicates with greater sac. It is situated at the level of T12 vertebra. Its boundaries are:-

- Anterior:- Right free margin of lesser omentum (contains portal vein, hepatic artery proper and bile duct).
- Posterior:- IVC, right suprarenal gland and T12 vertebra.
- Superior:- *Caudate lobe of the liver.*
- Inferior:- 1st part of the duodenum and horizontal part of the hepatic artery.

## 542. Internal anal Sphincter is formed by ?

a) Puborectalis

b) Circular muscles from lower rectum

c) Longitudinal Involuntary muscles

d) None

Correct Answer - B

**Ans. is 'b' i.e., Circular muscles from lower rectum [Ref BDC 4<sup>th</sup>/e Vol. H p. 383; Gray's Anatomy 40<sup>th</sup>ie Chapter 67]**

- External sphincter is contributed by fibers from puborectalis part of levator ani muscle (in upper most part); superficial transverse
- perineal muscles anteriorly and anococcygeal raphe posteriorly (in upper third) and anococcygeal ligament (in middle third).

**543. All of the following are true about duodenum except?**

a) Fourth part is the shortest part

b) Ampulla of Vater opens through the second part

c) Minor duodenal papilla is in the third part

d) First part appears like a duodenal cap on barium studies

Correct Answer - C

**Ans. is 'c' i.e., Minor duodenal papilla is in the third part [Ref BDC 6<sup>1</sup>\* Vol. 2 p. 259-262]**

**Third part (Horizontal part) :**

- It is 10 cm (4 inches) long. It begins at inferior duodenal flexure and passes towards the left in front of IVC behind superior mesenteric vessels and root of mesentery to meet 4<sup>th</sup> part of duodenum.

**544. Which of the following is a branch of the inferior mesenteric artery?**

a) Sigmoid artery

b) Middle colic artery

c) Renal artery

d) Right Colic artery

Correct Answer - A

**Ans. is 'a' i.e., Sigmoid artery [Ref BDC 6<sup>th</sup>/e yoi. 2 p. 276]**

**Inferior mesentric artery gives following branches ?**

1. Left colic artery
2. Sigmoid arteries
3. Superior rectal artery

## 545. Waldeyer's fascia connects ?

a) Rectum to sacrum

b) Rectum to uterus

c) Rectum to lateral wall of pelvis

d) Rectum to bladder

Correct Answer - A

**Ans. is 'a' i.e., Rectum to sacrum [Ref Clinical anatomy 2<sup>nd</sup> le p. 786]**

### **Support of rectum include**

1. Fascia of waldeyer : It attaches the lower part of rectal ampulla to the sacrum. It is formed by condensation of pelvic fascia behind the rectum and encloses the superior rectal vessels and lymphatics.
2. Lateral ligaments of the rectum : It is formed by condensation of pelvic fascia and encloses middle rectal vessels, and branches of pelvic plexuses.
3. Rectovesical fascia of denonvilliers : It extends from rectum (behind) to the prostate and seminal vesicle in front.
4. Pelvic peritoneum and related vascular pedicles.

**Perinea( body with its muscles.**

## 546. Content of Alcock's canal is ?

a) Internal pudendal artery

b) Internal iliac artery

c) Inferior rectal vein

d) Inferior mesenteric vein

Correct Answer - A

**Ans. is 'a' i.e., Internal pudendal artery [Ref BDC 6<sup>th</sup>/e Vol-2 p. 362]**

- Pudendal canal (Alcock's canal) is a fascial canal in the lateral wall of ischioanal (ischo-ano) fossa, enclosing pudendal nerve and internal pudendal vessels (artery and vein). It is a space between obturator fascia and lunate fascia. Other believe that it is formed by splitting of the obturator fascia.

**547. All of the following organs are in direct contact with the spleen except?**

a) Duodenum

b) Stomach

c) Left kidney

d) Colon

Correct Answer - A

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

**Gross morphology of the spleen**

Spleen has two ends (anterior or lateral and posterior or medial), three borders (superior, inferior and intermediate), two surfaces (visceral and diaphragmatic), two angles (anterobasal angle and posterobasal angle) and hilum.

The anterior end is supported by the phrenicocolic ligament.

The superior border is characteristically notched near its anterior end.

The visceral surface is related to the fundus of stomach (at gastric impression), left kidney (at renal impression), splenic flexure of the colon (at colic impression) and tail of the pancreas (at pancreatic impression). Its lower end is related to the *phrenicocolic ligament*. The *diaphragmatic* surface is related to the diaphragm.

## 548. Glans penis is a continuation of -

a) Corpus spongiosum

b) Ischiocavernosus

c) Corpora Cavernosa

d) Puborectalis

Correct Answer - A

**Ans. is 'A' i.e., Corpus spongiosum**

- The penis is the male organ of copulation. The penis has a root and a body.
- The root of the penis is situated in the superficial perineal pouch, attached to the inferior surface of the perineal membrane. It consists of three masses of erectile tissue: the bulb of the penis and two crura. Each crus continues forward to become the corpus cavernosum (in the body) and the bulb is the posterior end of the corpus spongiosum (of the body).
- The body of the penis is the free portion of the penis. It is composed of three elongated masses of erectile tissues:- right and left corpora cavernosa, and median corpus spongiosum. Corpora cavernosae are enveloped by tunica albuginea and corpus spongiosum is also surrounded by tunica albuginea. The penile urethra runs through the whole length of the corpus spongiosum from the bulb at the back to the terminal expanded part of the corpus spongiosum, called the glans penis.

## 549. Which muscle causes opening of the upper end of esophagus?

a) Epiglottis

b) Thyropharungeus

c) Stylopharyngeus

d) Cricopharyngeus of inferior constrictor

Correct Answer - D

**Ans. is 'd' i.e., Cricopharyngeus of inferior constrictor [Ref Hall, Arthur C. Guyton, John E. (2005). *Textbook of medical physiology (11th ed.)*. Philadelphia: W.B. Saunders. p. 782-784.]**

### **Upper esophageal sphincter**

- The upper esophageal sphincter surrounds the upper part of the esophagus.
- It consists of skeletal muscle, but is not under voluntary control.
- Opening of the upper esophageal sphincter is triggered by the swallowing reflex.
- The primary muscle of the upper esophageal sphincter is the cricopharyngeal part of the inferior pharyngeal constrictor.

**550. Posterior perforation of stomach, collection of contents occurs in which pouch ?**

a) Greater sac

b) Left subhepatic and hepatorenal spaces [pouch of Morrison]

c) Omental bursa

d) Right subphrenic space

Correct Answer - C

**Ans. is 'B' i.e., Left subhepatic and hepatorenal spaces [pouch of Morrison]**

A posterior gastric ulcer may perforate into the *lesser sac (omental bursa)*. The leaking fluid passes out through epiploic foramen to reach the hepatorenal pouch. Sometimes in these cases the epiploic foramen is closed by adhesions. Then the lesser sac becomes distended, and can be drained by a tube passed through the lesser omentum.

## 551. Cremastic muscle is formed from ?

a) Fascia from internal oblique

b) Fascia from external oblique

c) Fascia from rectus abdominis

d) Fascia from transversus abdominis

Correct Answer - A

**Ans. is 'a' i.e., Fascia from internal oblique**

**The layers of scrotum from outside to inside are :-**

1. Skin
2. Dartos muscle (smooth muscle layer) continuous with Colles fascia of perineum posteriorly and Scarpa's fascia and Camper's fascia anteriorly .
3. The external spermatic fascia, extension from external oblique.
4. The cremasteric muscle, continuous with fascia from internal oblique.
5. The internal spermatic fascia, continuous with fascia from fascia transversalis.

## 552. Kidney is covered by what fascia?

a) Sibson's fascia

b) Buck's Fascia

c) Gerota's Fascia

d) None

Correct Answer - C

**Ans. is 'c' i.e., Gerota's Fascia [Ref Farlex Partner Medical Dictionary Farlex 2012]**

### **Renal fascia**

- There are four coverings around the kidney (from within outwards) :-  
True capsule (fibrous capsule)
- It is formed by the condensation of fibrous stroma of kidney.
- False capsule (renal fascia or fascia of Gerota)
- It is formed by condensation of extra-peritoneal connective tissue around kidney and is continuous laterally with fascia transversalis. False capsule consists of two layers : anterior "fascia of Toldt" and posterior "fascia of Zuckerkendl".

**553.**

## Narrowest part of ureter is ?

a) Brim of the pelvis

b) Crossing by gonadal vessels

c) Vesicouretric junction

d) Crossing by ductus deferens

Correct Answer - C

**Ans. is 'c' i.e., Vesicouretric junction [Ref Campbell's urology 6<sup>th</sup> ed p. 2123; Gray's Anatomy for students 1<sup>st</sup> ed p. 325]**

**Ureter measures about 3 mm in diameter, but is constricted at five places**

1. Pelviureteric junction
2. Brim of lesser pelvis (at the level of bifurcation of common iliac artery and crossing of external iliac artery)
3. Point of crossing of ureter by ductus deferens or broad ligament
4. Entry in bladder wall (this vesicoureteral junction is the narrowest part of ureter)
5. Opening in lateral angle of trigone

## 554. What is the total length of the colon?

a) 1 metre

b) 1.5 metres

c) 2 metres

d) 4 metres

Correct Answer - B

**Ans. is 'b' i.e., 1.5 metres [Ref BDC Vol. II ele p. 269-273]**

- The large intestine extends from the ileocaecal junction to anus.
- It is 1.5 meters long and is divided into *caecum, ascending colon, right colic (hepatic) flexure, transverse colon, left colic (splenic) flexure, descending colon, sigmoid colon, the rectum and anal canal.*

**Transverse colon is longest part (50 cm) and anal canal shortest (3.8 cm).**

- Caecum → 6 cm Sigmoid colon → 37.5 cm
- Ascending colon → 12.5 cm Rectum → 12 cm
- Transverse colon → 50 cm Anal canal → 3.8 cm Descending colon → 25 cm

**555. Submandibular lymphnodes drain the following areas of the face except?**

a) Medial half of eyelids

b) Central part of lower lip

c) Medial part of cheek

d) Central part of fore head

Correct Answer - B

**Ans. is 'b' i.e., Central part of lower lip [Ref BDC Vol. III 6<sup>th</sup>/e p. 73] Lymphatic drainage of face**

**The face possesses three areas from which lymphatic drainage is as follows:?**

1. Upper area, comprising greater part of forehead, lateral Vi of eyelids, conjunctiva, lateral part of cheek and parotid area, drains into preauricular (superficial) parotid nodes.
2. Middle area, comprising central part of forehead, external nose, upper lip, lateral part of lower lip, medial halves of eyelids, medial part of cheek, and greater part of lower jaw, drains into submandibular nodes.
3. Lower area, including central part of lower lip and the chin, drains into submental nodes.

## 556. Larynx below the vocal cords drain into ?

a) Pretracheal lymph nodes

b) Occipital lymphnodes

c) Mediastinal nodes

d) Lymphatics along the superior laryngeal vein

Correct Answer - A

**Ans. is 'a' i.e., Pretracheal lymph nodes**

- Supraglottic part (Above vocal cord)
- Lymphatics along the superior laryngeal vein and nodes adjacent to the thyrohyoid membrane
- Infraglottic part (Below vocal cord)
- Pretracheal and prelaryngeal nodes
- Vocal cords
- Devoid of lymphatic supply

**557. Nerve supply to the angle of the mandible is by ?**

a) Posterior primary rami of C2, C3

b) Greater auricular nerve

c) Maxillary nerve

d) Mandibular nerve

Correct Answer - B

**Ans. is 'b' i.e., Greater auricular nerve**

The skin over the angle of the jaw (mandible) is supplied by the anterior division of the greater auricular nerve.

**558. Nerve supply to the tip of the nose is from?**

a) The ophthalmic division of the trigeminal nerve

b) Greater auricular nerve

c) The maxillary division of the trigeminal nerve

d) Mandibular nerve

Correct Answer - A

**Ans. is 'a' i.e., Ophthalmic division of the trigeminal nerve**

Tip of the nose and lower part of the dorsum of the nose are supplied by the external nasal branch of the ophthalmic division of the trigeminal nerve.

## 559. Dangerous space in the neck is found between?

a) Buccopharyngeal fascia and alar fascia

b) Prevertebral fascia and alar fascia

c) Buccopharyngeal fascia and Prevertebral fascia

d) None

Correct Answer - B

**Ans. is 'b' i.e., Prevertebral fascia and alar fascia [Ref "*Severe soft tissue infections of the head and neck: a primer for critical care physicians*". *Lung*. 187 (5): 271-9.]**

- The danger space or alar space, is a region of the neck. The common name originates from the risk that an infection in this space can spread directly to the thorax, and, due to being a space continuous on the left and right, can furthermore allow infection to spread easily to either side.
- It is bounded superiorly by the skull base, anteriorly by the alar fascia and posteriorly by the prevertebral fascia. It comes to an end at the level of the diaphragm.
- The retropharyngeal space is found anterior to the danger zone, between the alar fascia and buccopharyngeal fascia

**560. Which muscle is attached to the disc of the temporomandibular joint?**

a) Buccinator

b) Lateral pterygoid

c) Masseter

d) Temporalis

Correct Answer - B

**Ans. is 'B' i.e., Lateral pterygoid [Ref BDC 4<sup>15</sup>/e Vol. 3 p. 145; Last's anatomy 11<sup>th</sup>/e**

**Lateral pterygoid**

- origin → Upper head: Infra temporal surface & crest of greater wing of sphenoid. Lower head: Lateral surface of lateral pterygoid plate.
- Nerve supply → Pterygoid fovea on Anterior division of the neck of mandible → mandibular nerve. an audible, Articular disc and capsule of temporomandibular joint.
- Action → Depresses the mandible. Protrusion and side to side movement.

## 561. Maxillary tubercle gives attachment to ?

a) Lateral pterygoid

b) Medial pterygoid

c) Temporalis

d) Masseter

Correct Answer - B

**Ans. is 'b' i.e., Medial pterygoid [Ref BDC Vol III 6<sup>th</sup> le p. 116]**

### **Medial Pterygoid**

- Origin: *Superficial head*: Tuberosity of maxilla. *Deep head*: Medial surface of lateral pterygoid plate & pyramidal process of palatine bone.
- Insertion: Medial surface of angle mandible & adjoining ramus.
- Nerve supply: Branch from trunk of mandibular nerve
- Action : Elevates the mandible, Protection & side to side movement.

## 562. Vidian nerve is also known as?

a) Nerve of Pterygoid canal

b) Greater Petrosal nerve

c) Lesser Petrosal nerve

d) Greater Auricular nerve

Correct Answer - A

**Ans. is 'a' i.e., Nerve of Pterygoid canal**

- The nerve of the pterygoid canal (Vidian nerve) is formed by the junction of the greater petrosal nerve and the deep petrosal nerve within the pterygoid canal containing the cartilaginous substance, which fills the foramen lacerum.
- It passes forward through the pterygoid canal with its corresponding artery (artery of the pterygoid canal) and is joined by a small ascending sphenoidal branch from the otic ganglion.
- It then enters the pterygopalatine fossa and joins the posterior angle of the pterygopalatine ganglion.

## 563. Right Recurrent laryngeal nerve loops around?

a) Right subclavian artery

b) Right axillary artery

c) Right External carotid artery

d) Right Superior thyroid artery

Correct Answer - A

**Ans. is 'a' i.e., Right subclavian artery [Ref Larsen, William J. (1993). Human embryology]**

### **Recurrent laryngeal nerve**

- On right side it arises in the root of neck and winds around first part of right subclavian artery. It may be anterior (superficial) or posterior (deep) to inferior thyroid artery.
- On left side it arises in thorax (superior mediastinum) and winds around the arch of aorta immediately behind the attachment of ligamentum arteriosum. It is usually posterior (deep) to inferior thyroid artery or between its branches.
- Recurrent laryngeal nerve supplies all intrinsic muscles of larynx (except cricothyroid) and mucous membrane of larynx below vocal fold. It also gives branches to deep cardiac plexus, trachea, esophagus and inferior constrictor.
- Inferior thyroid artery is ligated away from gland to avoid injury to nerve. Left nerve is more liable to damage.

## 564. Left recurrent laryngeal passes between ?

- a) Trachea & larynx
- b) Trachea & esophagus
- c) Esophagus and bronchi
- d) Esophagus and aorta

Correct Answer - B

**Ans. is 'b' i.e., Trachea & esophagus [Ref Gray's 38<sup>th</sup>/e p. 786]**

The paths of the left and right recurrent laryngeal nerves very slightly with the left recurrent laryngeal nerve dividing from the main vagus nerve at the level of the aortic arch.

The left recurrent laryngeal nerve then dips posteriorly around the aortic arch to ascend through the superior mediastinum to enter the groove between the esophagus and trachea.

The right recurrent laryngeal nerve divides from the main vagus nerve at the level of the right subclavian artery to enter the superior mediastinum.

The right recurrent laryngeal nerve then dips posteriorly around the subclavian artery to ascend in the groove between the esophagus and trachea.

## 565. Structures pierced by the parotid duct are all except?

a) Buccopharyngeal fascia

b) Buccinator muscle

c) Buccal fat pad

d) Investing layer of deep cervical fascia

Correct Answer - D

**Ans. 'd' i.e., Investing layer of deep cervical fascia**

**The parotid duct (Stenson's duct)**

- Parotid duct emerges from the anterior border of the gland and passes forward over the lateral surface of the masseter and can be palpated at the tense anterior margin of the masseter muscle.
- In its course duct pierces buccal fat pad, buccopharyngeal fascia and buccinator muscle (obliquely) and opens on the mucous membrane of cheek opposite to second upper molar tooth.
- When intraoral pressure is raised (during blowing) the duct is compressed between the buccinator and mucous membrane, preventing inflation of the duct.

## 566. Which layer of the scalp is vascular?

a) Pericranium

b) Superficial fascia

c) Skin

d) Aponeurosis

Correct Answer - B

**Ans. is 'b' i.e., Superficial fascia**

**The scalp is a soft tissue that covers the calvaria of the skull. It consists of five *layers* and can be memorized by a mnemonic using the initial letters of the word. SCALP:?**

- Skin
- Close network of connective tissue (superficial fascia)
- Aponeurosis (galea aponeurotica) with occipitofrontalis muscles
- Loose areolar (subaponeurotic) tissue
- Pericranium (outer periosteum of the skull)

**567. All of the following pass through the Sinus of morgagni except -**

a) Auditory tube

b) Levator veli palatini

c) Ascending palatine artery

d) Stylopharyngeus

Correct Answer - D

**Ans. 'd' i.e., Stylopharyngeus**

Sinus of Morgagni is the large gap between the upper concave border of the superior constrictor and the base of the skull.

The structures passing through it are:

1. Auditory tube
2. Levator veli palatini
3. Ascending palatine artery
4. Palatine branch of ascending pharyngeal artery

## 568. Chorda tympani is a branch of ?

a) Facial nerve

b) Trigeminal nerve

c) Greater auricular nerve

d) External laryngeal nerve

Correct Answer - A

**Ans. is 'a' i.e., Facial nerve [Ref: BDC 6<sup>th</sup> le Vol 3 p. 371]**

### **Branches of facial nerve**

1. In fallopian (facial canal) :- Greater petrosal (greater superficial petrosal) nerve, nerve to stapedius, chorda tympani.
2. At its exit from stylomastoid foramen :- Posterior auricular, digastric nerve, stylohyoid nerve.
3. Terminal branches :- Temporal, zygomatic, buccal, marginal mandibular, and cervical.

## 569. Chorda-tympani does not carry which fibers?

- a) Preganglionic parasympathetic fibers for sublingual glands
- b) Preganglionic parasympathetic fibers for submandibular gland
- c) Preganglionic parasympathetic fibers for parotid gland
- d) Taste fibers from anterior two third of tongue

Correct Answer - C

**Ans. is 'c' i.e., Preganglionic parasympathetic fibers for parotid gland**

Chorda tympani is a branch of facial nerve mainly carrying taste sensations from the anterior 2/3rd of the tongue

The chorda tympani carries two types of nerve fibers from their origin with the facial nerve to the lingual nerve that carries them to their destinations:

Special sensory fibers providing taste sensation from the anterior two-thirds of the tongue.

Preganglionic parasympathetic fibers to the submandibular ganglion, providing secretomotor innervation to two salivary glands: the submandibular gland and sublingual gland and to the vessels of the tongue, which when stimulated, cause dilation of blood vessels of the tongue.

**570. Which of the following pass through the Hypoglossal canal?**

a) Hypoglossal nerve

b) External jugular vein

c) Facial nerve

d) Mandibular nerve

Correct Answer - A

**Ans. is 'a' i.e., Hypoglossal nerve [Ref BDC 6<sup>th</sup>/e Vol. 3 p. 18-20]**

**571. Which muscle is antagonist to orbicularis oculi that is not supplied by facial nerve?**

a) Levator Palpebrae superioris

b) Orbicularis oris

c) Superior oblique

d) Inferior oblique

Correct Answer - A

**Ans. is 'a' i.e., Levator Palpebrae superioris**

Orbicularis oculi closes the eye and is supplied by the facial nerve.

Levator Palpebrae superioris opens the eyelid and is supplied by the oculomotor nerve.

**572. All of the following are main branches of Trigeminal nerve except ?**

a) Mandibular nerve

b) Maxillary nerve

c) Ophthalmic nerve

d) Optic nerve

Correct Answer - D

**Ans. is 'd' i.e., Optic nerve [Ref BDC 6<sup>th</sup>/e Vol 3 p. 369]**

**Divisions of trigeminal nerve**

1. Ophthalmic division (Ophthalmic nerve : V1)
2. Maxillary division (Maxillary nerve : V2)
3. Mandibular division (Mandibular nerve : V3)

### 573. Extension of the retropharyngeal space is between ?

a) Alar fascia and buccopharyngeal fascia

b) buccopharyngeal fascia and prevertebral fascia

c) Alar fascia and Prevertebral fascia

d) None

Correct Answer - A

**Ans. is 'a' i.e., Alar fascia and buccopharyngeal fascia**  
**Retropharyngeal space**

- The retropharyngeal space is a potential space of the head and neck, bounded by the buccopharyngeal fascia anteriorly and the alar fascia posteriorly. Together with the lateral pharyngeal space, these spaces are termed the parapharyngeal spaces.
- It contains the retropharyngeal lymph nodes.
- Because serious infections of teeth can spread down this space into the posterior mediastinum, it is often confused with the danger space. The danger space is actually between the alar fascia and the prevertebral fascia and extends from the cranial base above to the level of the diaphragm.
- It is limited above by the base of the skull, and below where the alar fascia fuses with the buccopharyngeal fascia at about the level of T4 and the carina.

## 574. Delphian nodes are ?

a) Prelaryngeal nodes

b) Occipital nodes

c) Coeliac nodes

d) None of the above

Correct Answer - A

**Ans. is 'a' i.e., Prelaryngeal nodes**

The Delphian node (prelaryngeal) along with paratracheal nodes, pretracheal nodes, perithyroidal nodes makeup level VI cervical lymph nodes, and is not routinely excised in radical neck dissections. It receives lymph from the thyroid and larynx.

The Delphian node gains its name from the Oracle of Delphi, whose prophecy, in this case, would be of an unpleasant death secondary to laryngeal cancer.

The involvement of this node can be a result of diffuse nodal involvement in head and neck squamous cell carcinoma or isolation from the direct lymphatic spread of laryngeal cancer through the anterior commissure. Thyroid carcinomas may also involve this node.

## 575. Straight sinus is formed by?

a) Inferior Sagittal Sinus

b) Internal Jugular veins

c) Superior Sagittal Sinus

d) Tranverse sinus

Correct Answer - A

**Ans. is 'a' i.e., Inferior Sagittal Sinus**

The straight sinus, also known as tentorial sinus or the sinus rectus, is an area within the skull beneath the brain that receives venous blood.

Straight sinus is *formed by the union of the inferior sagittal sinus with the great cerebral vein*. It is considered a continuation of the inferior sagittal sinus.

It drains into the transverse sinus, most commonly in the left one.

The straight sinus is situated within the dura mater, where the falx cerebri meets the midline of tentorium cerebelli.

In cross-section, it is triangular, contains a few transverse bands across its interior, and increases in size as it proceeds backward.

## 576. Which artery supplies the paracentral lobule?

a) Medial Striate artery

b) Calloso Marginal artery

c) Pericallosal artery

d) Frontopolar artery

Correct Answer - B

**Ans. is 'b' i.e., Calloso Marginal artery [Ref BDC Vol. 3 6<sup>th</sup>/e p. 461, 462]**

**Calloso marginal artery is a branch of anterior cerebral artery that supplies the paracentral lobule which has a role in control of micturition**

**Anterior cerebral artery**

**Has following branches :-**

1. Medial striate artery (recurrent artery of Heubner) : It supplies caudate nucleus (ventral part), putamen, and anterior limb and genu of internal capsule.
2. Fronto-polar artery : It supplies medial and orbital surfaces of frontal lobe.
3. Orbital branches : It supplies medial and orbital surfaces of frontal lobe.
4. Calloso-marginal artery : It supplies the paracentral lobule and parts of gyrus cinguli.
5. Pericallosal artery : It supplies medial surface of parietal lobe and precuneous.

**577. Which of the following is not a permanent mucosal fold?**

a) Heister's valves

b) Transverse rectal fold

c) Plicae circularis

d) Gastric rugae

Correct Answer - D

**Ans. is 'd' i.e., Gastric rugae [Ref Inderbir Singh Histology p. 240; BDC 4<sup>th</sup>/e Vol. H p. 241, 245, 274, 378; Gray's 40<sup>th</sup> le p. 1138, 1120, 1151, 1132, 1178]**

Gastric rugae of stomach, and longitudinal folds in mucosa of upper rectum and colon are temporary mucosal folds and are obliterated by distension. Whereas, plica circularis (valves of kerkring) of small intestine, crescentic mucosal folds of cystic duct (spiral valve of Heister), transverse (horizontal) rectal folds (Houston's valves or plica transversalis) and permanent longitudinal rectal columns or folds (found in

## 578. Most lateral nucleus of cerebellum is ?

a) Dentate

b) Globose

c) Fastigial

d) Emboliform

Correct Answer - A

**Ans. is 'A' i.e., Dentate**

There are four deep cerebellar nuclei (from lateral to medial) : dentate, emboliform, globose, and fastigial.

The globose and the emboliform nuclei are sometimes lumped together as the interpositus nucleus.

**579.**

## Superior marginal gyrus is a part of?

a) Parietal lobe

b) Frontal lobe

c) Temporal lobe

d) Occipital lobe

Correct Answer - A

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

*The superior marginal gyrus is a portion of the parietal lobe.*

*This area of the brain is also known as Brodmann area 40 based on the universally used brain map created by Korbinian Brodmann to define the structures in the cerebral cortex.*

**580. Spinal segmental artery is a branch of ?**

a) Ascending spinal artery

b) Basilar artery

c) Posterior spinal artery

d) Anterior spinal artery

Correct Answer - A

**Ans. is 'a' i.e., Ascending spinal artery [Ref Spinal Cord  
Medicine. Demos Medical Publishing.]**

**Arterial supply of spinal cord**

**581.**

## Pars dorsalis is a part of ?

a) Cerebrum

b) Cerebellum

c) Pons

d) Thalamus

Correct Answer - C

**Ans. is 'c' i.e., Pons [Ref Farlex Partner Medical Dictionary  
Farlex 2012]**

### **Pars Dorsalis**

- The part of the pons bounded laterally by the middle cerebellar peduncles and anteriorly by the ventral part of pons; it is continuous with the tegmentum of the mesencephalon and contains long tracts such as the medial and lateral lemnisci, cranial nerve nuclei, and reticular formation.

## 582. Movement occurring at atlanto-axial joint?

a) Flexion

b) Bending

c) Rotation

d) Nodding

Correct Answer - C

**Ans. is 'c' i.e., Rotation [Ref: Clinical anatomy 3<sup>rd</sup>ie p. 786]**

**Movments permitted at atlanto-occipital joint are : -**

- Flexion and extension (nodding of head), and (ii) *Lateral flexion (bending of neck)*.
- Movements permitted at atlanto-axial joints are side-to-side rotation of head (looking towards right-or-left).

### 583. Arbor vitae are seen in ?

a) Cerebrum

b) Cerebellum

c) Pons

d) Thalamus

Correct Answer - B

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

- The arbor vitae is the cerebellar white matter, so-called for its branched, tree-like appearance.
- In some ways, it more resembles a fern and is present in both the cerebellar hemispheres.
- It brings sensory and motor information to and from the cerebellum.
- The arbor vitae is located deep in the cerebellum.
- Situated within the arbor vitae are the deep cerebellar nuclei; the dentate, globose, emboliform and the fastigial nuclei.
- These four different structures lead to the efferent projections of the cerebellum.

**584. Long spinous process is seen in ?**

a) Cervical vertebrae

b) Thoracic Vertebrae

c) Lumbar Vertebrae

d) Sacrum

Correct Answer - B

**Ans. is 'b' i.e., Thoracic Vertebrae [Ref: BDC 5<sup>th</sup>/e Vol. 3 p. 40]**

## 585. Total volume of CSF is?

a) 150 ml

b) 500 ml

c) 50 ml

d) 800 ml

Correct Answer - A

**Ans. is 'a' i.e., 150ml**

The major source of CSF is the choroidal plexus of all 4 ventricles, mainly in two lateral ventricles. Other sources of CSF are ependymal cells of the ventricles and the brain itself, via perivascular spaces.

The total volume of CSF in an adult is about 125-150 ml. The rate of formation of CSF is about 500-550 ml/day. Thus the CSF is replaced 3-4 times every day.

The watery part of CSF is secreted by transduction but each of its constituents is actively transported.  $\text{Na}^+$  is secreted into the CSF with the help of  $\text{Na}^+$  ATPase. Glucose enters CSF through facilitated diffusion mediated by GLUT-1.  $\text{HCO}_3^-$  is secreted with the help of carbonic anhydrase.

## 586. Lateral lemniscus terminates into ?

a) Lateral geniculate body

b) Superior colliculus

c) Inferior colliculus

d) Inferior olivary complex

Correct Answer - C

**Ans is 'c' i.e., Inferior colliculus [Ref BDC 6<sup>th</sup> /e Vol. .3 p. 374]**

## 587. Cerebellovestibular fibres pass through ?

a) Superior cerebellar peduncle

b) Middle cerebellar peduncle

c) Inferior cerebellar peduncle

d) None

Correct Answer - C

**Ans. is 'c' i.e., Inferior cerebellar peduncle [Ref BDC Vol. III 6<sup>th</sup> le p. 405]**

**Inferior cerebellar peduncle →**

- 1. Posterior spinocerebellar
- 2. Cuneocerebellar (posterior external arcuate fibres)
- 3. Olivocerebellar
- 4. Parolivocerebellar
- 5. Reticulocerebellar
- 6. Vestibulocerebellar
- 7. Anterior external arcuate fibres
- 8. Striae medullares

**588. Internal capsule- All of the following are parts except ?**

a) Anterior limb

b) Sublentiform part

c) Retrolentiform

d) Prelentiform

Correct Answer - D

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

**The internal capsule is divided from before backwards into following parts:**

- Anterior limb
- Posterior limb
- Retrolentiform part
- Genu
- Sublentiform part

**589. Which of the following is derived from the neural tube except?**

a) Retina

b) Brain

c) Dorsal root ganglia

d) Pineal gland

Correct Answer - C

**Ans. is 'c' i.e., Dorsal root ganglia [Ref Textbook of human embryology -786]**

Nervous system develops from ectoderm (neuroectoderm). Nervous system develops from neural tube which in turn develops by process of neurulation, i.e. formation of neural plate and its infolding into neural tube.

**590. Which of the following is a complete sulcus in the brain?**

a) Calcarine sulcus

b) Paracentral sulcus

c) Both

d) None

Correct Answer - A

**Ans. is 'a' i.e., Calcarine sulcus**

***The calcarine sulcus (or calcarine fissure) is an anatomical landmark located at the caudal end of the medial surface of the brain of humans and other primates. Its name comes from the Latin "calcar" meaning "spur". It is a complete sulcus.***

For accommodation in a limited space within the rigid cranial box, the cerebral cortex is folded into numerous gyri or convolutions separated by sulci or fissures. Eventually the total surface area of the cortex of human brain is increased to about 2200 cm<sup>2</sup>, in which only about one third of the cortex is exposed as gyri and two third is hidden in the sulci.

### 591. Substantia ferruginea is found in -

a) Fourth ventricle

b) Thalamus

c) Midbrain

d) Third ventricle

Correct Answer - A

**Ans. is 'a' i.e., Fourth ventricle [Ref Medical Dictionary, 2009 Farlex and Partners]**

***It is a shallow depression, of a blue color in the fresh brain, lying laterally in the most rostral portion of the rhomboidal fossa near the cerebral aqueduct; it lies near the lateral wall of the fourth ventricle and consists of about 20,000 melanin-pigmented neuronal cell bodies the norepinephrine-containing axons of which have a remarkably wide distribution in the cerebellum as well as in the hypothalamus and cerebral cortex. Also called as locus cinereus, locus ferrugineus.***

## 592. Infundibular diverticulum is an extension of ?

a) 1<sup>st</sup> and 2<sup>th</sup> ventricles

b) 3<sup>rd</sup> ventricle

c) 4<sup>th</sup> ventricle

d) None

Correct Answer - B

**Ans. is 'B' i.e., 3<sup>rd</sup> ventricle**

Third ventricle is a midline cavity of diencephalon. It is a median cleft between *two* thalami. Anterosuperiorly it communicates with lateral ventricle through the interventricular foramen (foramen of Monro). Posteroinferiorly it communicates with fourth ventricle through cerebral aqueduct (Duct of Sylvius).

There are four extensions (recesses) of third ventricle : (a) Suprapineal recess, (b) Pineal recess, (c) Infundibular recess, and (d) Optic recess.

### 593. Osseocartilagenous junction is present at ?

a) Nasion

b) Rhinion

c) Radix

d) Columella

Correct Answer - B

**Ans. is 'b' i.e., Rhinion** [Ref Textbook of general anatomy p. 10]

Nasion → The depression at the junction of nose with forehead.

Rhinion → The point located at the osseocartilagenous junction over the dorsum of the nose.

Radix → Junction between the frontal bone and nasal bone.

Columella → Column between the nostrils at the base of the nose..

**594. At what level does the trachea bifurcates ?**

a) Upper border of T4

b) Lower border of T4

c) 27.5 cm from the incisors

d) Lower border of T5

Correct Answer - B

**Ans. is 'b' i.e., Lower border of T<sub>4</sub>** [Ref BDC S<sup>th</sup>/e Volume 1 p. 267]

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

**595. Cricoid cartilage lies at which vertebral level ?**

a) C3

b) C6

c) T1

d) T4

Correct Answer - B

**Ans. is 'b' i.e., C6** [Ref BDC 5<sup>th</sup>Ve Vol. III, p. 237]

## 596. Which of the following is true about vertebral development -

- a) The notochord forms the annulus fibrosus
- b) The sclerotome forms the nucleus pulposus
- c) The sclerotome surrounds the notochord only
- d) The sclerotome surrounds the notochord and the neural tube

Correct Answer - D

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

### **Development of vertebral column**

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

**597. Which of the following is not a congenital anomaly?**

a) Amastia

b) Polymastia

c) Polythelia

d) Mastitis

Correct Answer - D

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

**Developmental anomalies of the mammary glands :**

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

## 598. Rectum develops from

a) Cloaca

b) Hind gut

c) Allantoic remnants

d) Urogeital sinus

Correct Answer - A:B

**Ans. is `b > a' i.e., Hind gut > Cloaca** [Ref : Inderbir Singh human embryology S<sup>th</sup>/e p. 149]

Postallantoic part of hind gut is the dilated endodermal cloaca, which is separated from the surface by cloacal membrane.

Urorectal septum divides endodermal cloacae into

Anterior part, known as primitive urogenital sinus, which develops into urinary bladder and urethra.

Posterior part, known as primitive rectum, which gives rise to lower part of rectum and upper part of anal canal.

**599. All are derived from ectoderm except -**

a) Hypophysis

b) Retina

c) Spinal cord

d) Adrenal cortex

Correct Answer - D

**Ans. is 'd' i.e., Adrenal cortex** [Ref Inderbir Singh Human Embryology 5<sup>th</sup>/e p. 300]

The cells of the adrenal cortex arise from the coelomic epithelium (mesoderm).

The cells of the medulla are derived from the neural crest cells (ectoderm).

The anterior pituitary is derived from the surface ectoderm lining the oral cavity as it is an outgrowth from the Rathke's pouch.

The posterior pituitary is actually a continuation of the hypothalamus and so it is derived from the neural ectoderm.

The spinal cord and brain are derived from the neural ectoderm.

The retina is also derived from the neural ectoderm.

## 600. Development of labia majora is from -

a) Urogenital sinus

b) Mullerian duct

c) Genital ridge

d) Genital swelling

Correct Answer - D

**Ans. is 'd' i.e., Genital swelling** [Ref: Inderbir Singh Human Embryology S<sup>th</sup>/e p. 256]

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

**601. Blastocyst makes contact with endometrium on ?**

a) < 3 days

b) 5 - 7 days

c) 8 - 11 days

d) 15 -16 days

Correct Answer - B

**Ans. is 'b' i.e., 5 -7 days** [Ref: Text book of Human embryology - 286]

Contact of blastocyst with endometrium occurs at the time of implantation.

Implantation occurs at around 6 -7 days.

## 602. Haploid number of chromosomes is seen in ?

a) Spermatogonia

b) Primary spermatocytes

c) Secondary spermatocyte

d) None

Correct Answer - C

**Ans. is 'c' i.e., Secondary spermatocyte** [Ref Ganong 23<sup>rd</sup> p. 403, 404]

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

**Development of sperm is as follows : -**

- Spermatogonia(Diploid-46) → Primary spermatocyte (Diploid-46)  
**Primary spermatocyte (Diploid-46) is of 2 types-**
- .. Secondary spermatocyte → Spermatid (Haploid-23)
- .. Secondary spermatocyte (Haploid-23) → Spermatid (Haploid-23)
- Similarly in oogenesis, haploid number is seen in secondary oocytes.

### 603. Sperm chromosome faster is -

a) X chromosome

b) Y chromosome

c) Both same

d) None

Correct Answer - B

**Ans. is 'b' i.e., Y chromosome** [Ref Principle of medical physiology - 51]

The human Y chromosome is smaller than X chromosome.

Hence, the sperms containing Y chromosomes are lighter and swim faster up the female genital tract, reaching the ovum earlier than the Y bearing sperms.

This probably contributes to the fact that the global male birth rate is slightly higher than the female birth rate.

## 604. All are derived from ectoderm except ?

a) Lens

b) Eustachian tube

c) Brain

d) Retina

Correct Answer - B

**Ans. is 'b' i.e., Eustachian tube** [Ref HUMAN EMBRYOLOGY edited by Krishna Garg, 2<sup>nd</sup> ed p. 56, 133]

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

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

pituitary which  
are ectoderm)

**605. Which of the following is derived from endoderm?**

a) Gall bladder

b) Lens

c) Spleen

d) Lymph nodes

Correct Answer - A

**Ans. is 'a' i.e., Gall bladder** [Ref Embryology Garg 2<sup>nd</sup>/e various pages]

## 606. Development of peritoneal cavity is from ?

a) Mesenchyme

b) Intraembryonic coelom

c) Ectoderm

d) Endoderm

Correct Answer - B

**Ans. is 'b' i.e., Intraembryonic coelom** [Ref Embryology by Indu Khuran 2<sup>nd</sup>le p. 96]

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

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

- Peritoneal cavity, pericardial cavity and pleural cavity develop from Intraembryonic coelom.

## 607. Cytotrophoblasts invades ?

a) D parietalis

b) D basal is

c) D capularis

d) None

Correct Answer - B

**Ans. is 'b' i.e., D basalis** [Ref Human Embryology by Rani Kumar p. 37]

After embedding of blastocyst in the endometrial stroma, the trophoblast differentiates into -

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

## 608. Coronary sinus develops from ?

a) Truncus arteriosus

b) Conus

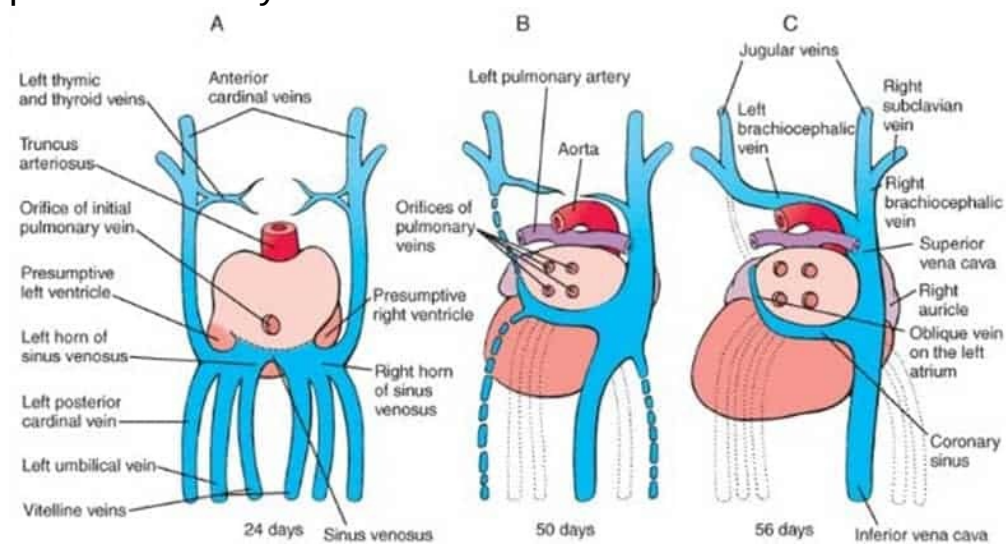
c) Sinus venosus

d) AV canal

Correct Answer - C

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

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



### 609. Which is derived from wolffian duct ?

a) Appendix of testis

b) Uterus

c) Appendix of epididymis

d) Hydatid of margagni

Correct Answer - C

**Ans. is 'c' i.e., Appendix of epididymis** [Ref IB singh 8<sup>th</sup>/e - 260]  
Appendix of epididymis develops from mesonephric (wolffian) duct.  
Appendix of testis (also called hydatid of margagni) and uterus develop from paramesonephric duct.

## 610. Artery of 2<sup>nd</sup> pharyngeal arch is ?

a) Maxillary artery

b) Stapedial artery

c) Subclavian artery

d) Common carotid artery

Correct Answer - B

**Ans. is 'b' i.e., Stapedial artery** [Ref Garg 2<sup>nd</sup>/e - 223; Langman's - 185]

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

## 611. Fossa ovalis is a remnant of ?

a) Septum primum

b) Septum secundum

c) Ductus arteriosus

d) Ductus venosus

Correct Answer - A

**Ans. is 'a' i.e., Septum primum** [Ref BDC 5<sup>th</sup>/e Volume 1 p. 247; IBS 7<sup>th</sup>/e p. 265; Garg 2<sup>nd</sup>/e p. 215]

Fossa ovalis is a remnant of foramen ovale. Floor of fossa ovalis is remnant of septum primum.

## 612. Y chromosome is ?

a) Metacentric

b) Submetacentric

c) Acrocentric

d) None

Correct Answer - C

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

**Each chromosome has two arms :-**

.. p arm (the shorter of two)

?. q arm (longer one)

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

### **1. Metacentric**

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

### **2. Submetacentric**

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

### **3. Acrocentric**

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

### 613. The outer layer of the blastocyst forms ?

a) Primitive streak

b) Yolk sac

c) Embryo proper

d) Trophoblast

Correct Answer - D

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

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

**614. Inferior parathyroid develops from which arch ?**

a) 1<sup>st</sup>

b) 2<sup>nd</sup>

c) 3<sup>rd</sup>

d) 4<sup>th</sup>

Correct Answer - C

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

## 615. Mesodermal in origin ?

a) Astrocytes

b) Oligodendrocytes

c) Ependymal cells

d) Microglial cells

Correct Answer - D

**Ans. is 'd' i.e., Microglial cells** [Ref I.B. Singh p. 319-321]

Microglial cells are the nervous system counterpart of the monocyte macrophage system.

The unique feature about microglia is that unlike other neuroglial cells it is not developed from neuroectoderm.

These cells are mesodermal in origin.

**616. Fossa ovalis closes because of fusion of ?**

a) Septum primum + Endocardial cushion

b) Septum secundum + Endocardial cushion

c) Septum primum + Septum secundum

d) None

Correct Answer - C

**Ans. is 'c' i.e., Septum primum + Septum secundum** [Ref Essentials of human embryology — 213-215]

After birth, the foramen ovale closes by fusion of septum primum with septum secundum.

**617. Which of the following is a traction epiphysis ?**

a) Tibial condyles

b) Trochanter of femur

c) Coracoid process of scapula

d) Head of femur

Correct Answer - B

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

## 618. Corpora arenacea is seen in ?

a) Prostrate

b) Pineal

c) Seminal vesicle

d) Breast

Correct Answer - B

**Ans. is 'b' i.e., Pineal** [Ref Textbook of human histology-323]

Corpora arenacea (or brain sand) are calcified structures in Pineal gland and other areas of brain such as choroid plexus.

## 619. Nutrient artery runs ?

a) Towards metaphysis

b) Away from metaphysis

c) Away from epiphysis

d) None

Correct Answer - A

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

### **Nutrient artery**

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

**620. Multi-unit smooth muscle present at all except ?**

a) Blood vessels

b) Iris

c) Gut

d) Ductus deferens

Correct Answer - C

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

## 621. Renal papilla opens into -

a) Cortex

b) Pyramid

c) Minor calyx

d) Major calyx

Correct Answer - C

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

**Each kidney has two distinct zones :**

- 1. The outer cortex
  - 2. The inner medulla
    - The medulla comprises about 10 renal pyramids. Their apices form renal papillae which indent the minor calyces.
    - The cortex is divided into two parts
      - Cortical arches or cortical lobules, which form caps over the bases of the pyramids.
      - Renal columns, which dip in between the pyramid.
- Each pyramid along with overlying cortical arch forms a lobe of the kidney.
- The renal sinus is a space that extends into the kidney from the hilus.
- It contains :**
- Branches of the renal artery.
  - Tributaries of the renal vein.
  - Renal pelvis: Pelvis divides into 2 to 3 major calyces, and these, in turn, divide into 7-13 minor calyces. Each minor calyx ends in an expansion which is indented by one to three renal papillae

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

a) Deep branch of ulnar nerve

b) Deep branch of the radial nerve

c) Superficial branch of ulnar nerve

d) Median nerve

Correct Answer - A

**Ans. is 'a' i.e., Deep branch of ulnar nerve** [Ref BDC 5th le Volume I p. 110-111]

Inability to hold paper sheet signifies inability to adduct the fingers. It is nothing else but card test.

Deep branch of ulnar nerve supplies the palmar interossei which control the adduction between fingers.

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

a) More than resting pressure

b) Less than resting pressure

c) No change in pressure

d) First rises and then falls

Correct Answer - C

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

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

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

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

## 624. The nutrient artery to the femur is?

- a) Profunda femoris artery
- b) Femoral artery
- c) Popliteal artery
- d) Middle circumflex femoral artery

Correct Answer - A

**Ans. is 'a' i.e., Profunda femoris artery**

### **Nutrient Arteries**

The femur is supplied by 2nd perforating branch of profunda femoris artery.

Tibia is supplied by a branch of posterior tibial

The fibula is supplied by the peroneal artery which is a branch of posterior tibial artery.

The humerus is supplied by a branch of profunda brachii artery

Radius/ulna are supplied by the anterior interosseous artery which is a branch of the ulnar artery.

## 625. Site of injection in gluteus ?

a) Inferomedial

b) Superomedial

c) Superolateral

d) Superomedial

Correct Answer - C

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

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

## 626. Waldeyer's fascia lies ?

a) In front of the bladder

b) Behind the rectum

c) Between bladder and uterus

d) Between uterus and rectum

Correct Answer - B

Ans. is 'B' i.e., Behind the rectum

\* The cave of Retzius is a fat-filled retroperitoneal space that allows for the accommodation of a distended bladder.

\* The Waldeyer's fascia, also known as the presacral fascia, accommodates the distended rectum.

\* The pouch of Douglas is a fold of peritoneum between the uterus and the rectum.

\* The pouch of Dunn is a fold of peritoneum between the bladder and the uterus.

\* The fascia of Denonvillier lies between the bladder in front and rectum behind.

## 627. The transverse sinus is present posterior to which structures?

a) Right atrium

b) Left atrium

c) Upper pulmonary artery

d) Aorta

Correct Answer - D

**Ans. 'D' i.e., Aorta**

### **Pericardial sinuses**

\* On the posterior surface of the heart, the reflection of the serous pericardium (epicardium) around large veins forms a recess called the oblique sinus.

\* Oblique sinus is bounded anteriorly by the left atrium, and posteriorly by the parietal pericardium and esophagus.

\* The transverse sinus is a short passage that lies between the reflection of the serous pericardium (epicardium) around arterial (aorta and pulmonary trunk) and venous ends of the heart tube.

\* The transverse sinus is bounded anteriorly by ascending aorta and pulmonary trunk, posteriorly by SVC, and inferiorly by the left atrium

**628. Surface marking of the oblique fissure of the lung include all except**

a) T<sub>3</sub>

b) 5<sup>th</sup> rib

c) 7<sup>th</sup> rib

d) 6<sup>th</sup> costal cartilage

Correct Answer - C

**Ans. is 'c' i.e., 7<sup>th</sup> rib**

**Surface marking of fissures**

The oblique fissure can be drawn by joining:

A point 8 cm lateral to 3rd thoracic vertebrae.

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

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

**629. Anterior relations of the right kidney are all except?**

a) Liver

b) 4<sup>th</sup> part of duodenum

c) Hepatic flexure

d) Adrenal gland

Correct Answer - B

**Ans. is 'b' i.e., 4<sup>th</sup> part of the duodenum**

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

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

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

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

## 630. Pancreas divisum indicates which of the following ?

- a) Duplication of the pancreas
- b) Failure of fusion of dorsal & ventral pancreatic buds
- c) Formation of more than two pancreatic buds
- d) Formation of only one pancreatic bud

Correct Answer - B

**Answer-. is 'b' i.e., Failure of fusion of dorsal & ventral pancreatic buds** [Ref Inderbir Singh Human Embryology 8thle p. 168]

**Anomalies of pancreatic development may be:**

1. Annular pancreas :- Two components of the ventral bud fail to fuse and grow in opposite direction around the duodenum and meet the dorsal pancreatic duct.
2. Pancreatic divisum (divided pancreas) :- Ventral and dorsal buds fail to fuse with each other.
3. Inversion of pancreatic duct :- The main pancreatic duct is formed by the duct of dorsal bud, i.e. accessory duct is larger than the main duct and the main drainage of pancreas is through the minor duodenal papilla.
4. Accessory pancreatic tissue :- May be found as
  - \* Wall of stomach, duodenum, jejunum or ileum.
  - \* Meckel's diverticulum

### 631. Right ovarian artery is a branch of ?

a) Abdominal aorta

b) Right internal iliac

c) Common iliac

d) External iliac

Correct Answer - A

**Ans. 'a' i.e., Abdominal aorta** [Ref BDC 5th/e Volume .3 p. 343]

**Lateral branches:**

- \* Inferior phrenic artery
- \* Middle suprarenal artery
- \* Renal artery
- \* Testicular / ovarian artery

**632. Structure immediately posterior to pancreatic head?**

a) Right renal vein

b) Splenic artery

c) Inferior mesenteric vein

d) Coeliac trunk

Correct Answer - A

**Ans. is 'a' i.e., Right renal vein** [Ref BDC 5<sup>th</sup> volume 2 p. 306]  
Terminal part of right renal vein is posterior to head of pancreatic

**633. Which of these best describes the renal angle ?**

a) The angle between the lattissimus dorsi and the 12<sup>th</sup> rib

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

c) The angle between the 12<sup>th</sup> rib and the erector spinae

d) The angle between the 12<sup>th</sup> rib and the rectus abdominis

Correct Answer - C

**Answer-. is 'C' i.e., The angle between the 12<sup>th</sup> rib and the erector spinae**

The angle between the lower border of the 12<sup>th</sup> rib and the outer border of the erector spinae is known as the renal angle.

Overlies the lower part of the kidney.

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

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

a) Ischiorectal fossa

b) Perineum

c) Abdomen

d) None

Correct Answer - A

**Ans. is 'a' i.e., Ischiorectal fossa [Ref BDC 5<sup>th</sup>/e Volume H p. 211]**

## 635. Neurovascular plane in anterior abdominal wall -

a) Between ext oblique and internal oblique

b) Between int. oblique and transversus abdominis

c) Below transversus abdominis

d) Above ext. oblique

Correct Answer - B

**Ans. is 'b' i.e., Between int. oblique and transverses abdominis** [Ref: Human anatomy 5th/p. 73]

The muscles of the anterior abdominal wall consist of three broad thin sheets that are aponeurotic in front, from exterior to interior they are external oblique, internal oblique and transversus.

The nerve and accompanying intercostal vessels lie between the internal oblique and transverse abdominis. i.e. neurovascular plane.

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

a) Upper part of thigh

b) Lower abdominal wall

c) Flank

d) Penis

Correct Answer - C

**Ans. is 'c' i.e., Flank** [Ref B.D.C. Vol II 6th/e p. 375; Clinical Anatomy - 912]

Pain fibers from bladder pass through both parasympathetic and sympathetic pathway and enter T11- L2 and S2- S4 cord segments. Hence referred pain is felt in the lower part of anterior abdominal wall (hypogastrium), upper part of front of thighs, scrotum or labium majus, penis or clitoris, and perineum.

### 637. Structure not seen at L3 level ?

a) Iliac vessels

b) Aorta

c) Coeliac trunk

d) IVC

Correct Answer - C

**Ans. is 'C' i.e., Coeliac trunk**

Coeliac trunk is at T12 - L 1level.

The transverse section at the level of L3 shows lower abdominal organs.

## 638. Spleen extends from ?

a) 5<sup>th</sup> to 9<sup>th</sup> rib

b) 9<sup>th</sup> to 11<sup>th</sup> rib

c) 2<sup>nd</sup> to 5<sup>th</sup> rib

d) 11<sup>th</sup> to 12<sup>th</sup> rib

Correct Answer - B

**Ans. is 'b' i.e., 9<sup>th</sup> to 11<sup>th</sup> rib** [Ref BDC Vol. II Sthle p. 431]

### **Surface marking of spleen**

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

**639. All are branches of the inferior mesenteric artery except ?**

a) Left colic

b) Sigmoidal artery

c) Middle rectal

d) Superior rectal

Correct Answer - C

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

**Inferior mesenteric artery branches:**

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

## 640. Rouviere nodes are situated in ?

a) Nasopharynx

b) Oral cavity

c) Retropharynx

d) Clavicular nodes

Correct Answer - C

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

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

## 641. Risorius is a muscle of ?

a) Mastication

b) Deglutition

c) Facial expression

d) Eye movement

Correct Answer - C

**Ans. is 'c' i.e., Facial expression** [Ref BDC Vol. III, 5th /e p. 57]

The risorius (also risorius muscle, latin: musculus risorius) is a muscle of facial expression located laterally to the mouth opening, which pulls the angle of the mouth laterally.

\* Origin

- The risorius originates from the masseteric fascia.

\* Insertion

- The risorius inserts into the skin of the angle of the mouth.

\* Action

- Upon activation the risorius pulls the angle of the mouth laterally.

- Contractions of the risorius muscle produce facial expression of pleasure and laughter.

\* Innervation

- The risorius is innervated by the buccal branch of the facial nerve (CN VII).

\* Blood supply

- The risorius is mainly supplied by the superior labial branch of the facial artery.

**642.**

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

a) 1<sup>st</sup>

b) 2<sup>nd</sup>

c) 3<sup>rd</sup>

d) None

Correct Answer - A

**Ans. 'a' i.e., 1<sup>st</sup>**

**Branches of the subclavian artery:?**

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

### 643. Nucleus fasciculatus is seen in ?

a) Frontal lobe

b) Medulla

c) Temporal lobe

d) Midbrain

Correct Answer - B

**Ans. is 'b' i.e., Medulla** [Ref Quantitative Human physiology : An introduction p. 327]

It has not been mentioned in any textbook.

But according to the above mentioned reference nucleus fasciculatus is the other name of nucleus cuneatus.

"The sensory fibers of dorsal column travel in tracts, fasciculus gracilis and fasciculus Cuneatus in the Cord and these fibers make synapses with second order neurons in the nucleus gracilis and the nucleus fasciculatus". — Quantitative Human physiology.

Nucleus gracilis and nucleus fasciculus are found in the medulla.

**644. Which of the following is an operculated sulcus ?**

a) Calcarine

b) Collateral

c) Lunate

d) Central

Correct Answer - C

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

**Operculated sulcus** separates by its lips into two areas and contains a third area in the walls of the **sulcus** e.g. lunate **sulcus** is an **operculated sulcus**, separating the striate and parastriate areas.

Axial → Posterior part of calcarine sulcus

Limiting → Central sulcus Anterior part of calcarine sulcus

Operculated → Lunate sulcus

Complete → Collateral sulcus, Anterior part of calcarine sulcus

## 645. Chamberlains line is ?

a) Palate to occiput

b) Palate to temporal

c) Palate to foramen magnum

d) Palate to parietal

Correct Answer - C

**Ans. is 'c' i.e., Palate to foramen magnum** [Ref: Atlas of radiographic measurement]

The Chamberlain line is drawn from the posterior surface of the hard palate to the tip of the opisthion (posterior aspect of the foramen magnum).

It is used to measure the distance of how much the odontoid tip extends above this line. If the tip of the dens extends > 3 mm above this line then it helps to recognize the presence of basilar invagination (a craniocervical junction abnormality where the tip of the dens project up into the foramen magnum)

## 646. Structures not passing through Aortic opening:

a) Azygos vein

b) Aorta

c) Thoracic duct

d) Vagus

Correct Answer - D

**Answer - D. Vagus**

Aortic opening (**Aortic hiatus**) is one of the three major apertures through the diaphragm & lies at the level of T12.

Several structures pass through the aortic hiatus: **aorta, azygos vein, thoracic duct.**

**Vagus** passes through **the oesophageal hiatus.**

## 647. Nerves of Branchial arch derived from:

a) Mesoderm

b) Endoderm

c) Neural crest

d) Neuroectoderm

Correct Answer - C

### Answer -C. Neural crest

Branchial or pharyngeal arches are masses of mesoderm covered by ectoderm and lined by endoderm. Within these masses, muscular and skeletal components develop, as well as aortic arches and nerve networks. The arches are separated by grooves, visible on the surface of the embryo as pharyngeal clefts and in the interior as the pharyngeal pouches

- In the human embryo, the arches are first seen during the 4th week of development.
- They appear as a series of outpouchings of **mesoderm** on both sides of developing pharynx.
- The **neural crest** are bilaterally paired strips of cells arising in the ectoderm at the margins of the neural tube. These cells migrate to many different locations and differentiate into many cell types within the embryo.

### Neural Crest Derivatives

- A key feature of neural crest is the migration into other embryonic tissues to form specific neural and non-neural populations and structures.

### Cranial neural crest

- migration - dorsolaterally and into pharyngeal arches
- craniofacial mesenchyme - cartilage, bone, cranial neurons, glia,

and connective tissues of the face

- pharyngeal arches and pouches - thymic cells, tooth odontoblasts, middle ear bones (ossicles), stria vascularis cells, and jaw (mandible)
- In the body region, neural crest cells also contribute the peripheral nervous system (both neurons and glia) consisting of sensory ganglia (dorsal root ganglia), sympathetic and parasympathetic ganglia and neural plexuses within specific tissues/organs.
- In the head region, neural crest cells migrate into the pharyngeal arches forming ectomesenchyme contributing tissues which in the body region are typically derived from mesoderm (cartilage, bone, and connective tissue).

<b>Neural Crest Origin</b>	
<b>System</b>	<b>Cell Type</b>
Peripheral Nervous System (PNS)	Neurons - sensory ganglia, sympathetic and parasympathetic ganglia, enteric nervous system, and plexuses Neuroglial cells, olfactory ensheathing cells Schwann cells
Endocrine	Adrenal medulla Calcitonin-secreting cells Carotid body type I cells
Integumentary	Epidermal pigment cells
Facial cartilage and bone	Facial and anterior ventral skull cartilage and bones
Sensory	Inner ear, corneal endothelium and stroma
Connective tissue	Tooth papillae smooth muscle, and adipose tissue of skin of head and neck Connective tissue of meninges, salivary, lacrimal, thymus, thyroid, and pituitary glands Connective tissue and smooth muscle in arteries of aortic arch origin

## 648. Acute tonsillitis effects which nerve:

a) Glossopharyngeal Nerve

b) Facial Nerve

c) Trigeminal nerve

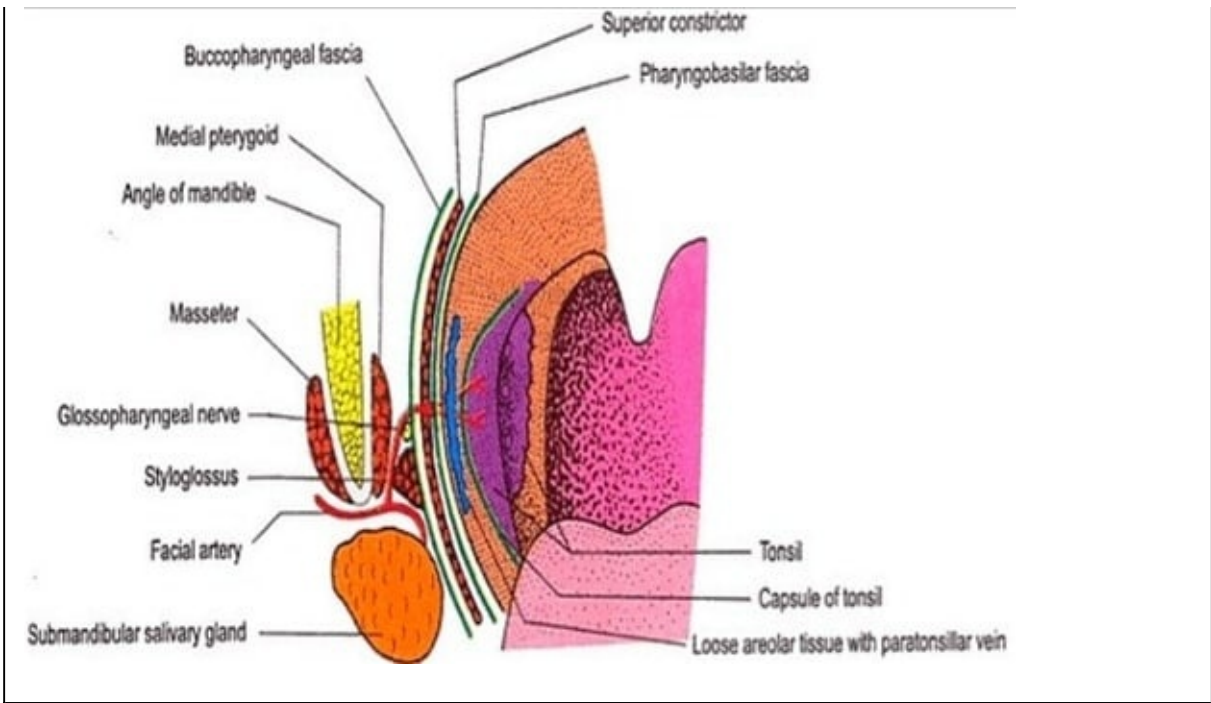
d) Vagus Nerve

Correct Answer - A

### **Answer- A. Glossopharyngeal Nerve**

The nerves supplying the palatine tonsils come from the maxillary division of the trigeminal nerve via the lesser palatine nerves, and the tonsillar branches of the glossopharyngeal nerve. The glossopharyngeal nerve continues past the palatine tonsil and innervates the posterior 1/3 of the tongue to provide general and taste sensation. This nerve is most likely to be damaged during a tonsillectomy, which leads to reduced or lost general sensation and taste sensation to the posterior third of the tongue.

### **Relations of tonsillar bed**



## 649. Hard palate contains:

a) Keratinised, submucosa, minor salivary gland

b) Keratinised, absent submucosal layer, minor salivary gland

c) Non keratinised, submucosal layer, minor salivary gland

d) Non keratinised, absent submucosa, minor salivary gland

Correct Answer - A

**Answer - A. Keratinised, submucosa, minor salivary gland**

The **hard palate** is located on the roof of the oral cavity, posterior and medial to the alveolar process of the maxilla.

The bony structure is formed by the palatine processes of the maxilla and the horizontal plates of the palatine bones.

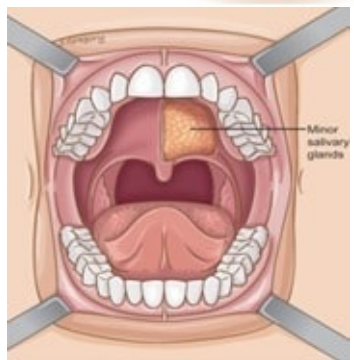
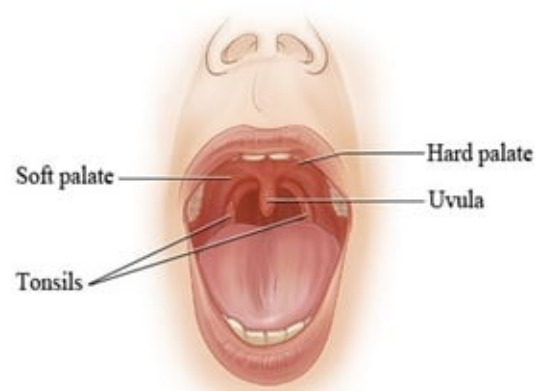
The periosteum is covered by a firmly attached mucosa centrally, although a **submucosa** is apparent laterally containing vessels. The hard palate is continuous with the soft palate posteriorly.

### **Macroscopic Features**

- The hard palate is typically a pale pink colour and may have an orange peel appearance from the **palatine salivary glands** (more common posteriorly).

### **Microscopic Features**

- The hard palate is lined with a **keratinising stratified squamous epithelium**, tightly bound to the underlying periosteum of the palatine bone/maxilla. There is **minimal submucosa**, which becomes more prominent posteriorly.



## 650. Broca's area situated in:

a) Inferior frontal gyrus

b) Superior temporal gyrus

c) Angular gyrus

d) None of the above

Correct Answer - A

**Answer- A. Inferior frontal gyrus**

**Broca's area** or the **Broca area (44)** is a region in the frontal lobe of the dominant hemisphere (usually the left) of the hominid brain with functions linked to speech production.

Inability to speak after injury to the posterior **inferior frontal gyrus** of the brain.

**Pierre Paul Broca** identified this region, known as Broca's area.

Difficulty in language production as **Broca's aphasia**, also called **expressive aphasia**.

Broca's area is now typically defined in terms of the **pars opercularis** and **pars triangularis** of the inferior frontal gyrus.



**BROCA'S AREA**(shown in red). Colored region is pars opercularis and pars triangularis of the inferior frontal gyrus. Broca's area is now typically defined in terms of the pars opercularis and pars triangularis of the inferior frontal gyrus.

## 651. Thrombosis of posterior inferior cerebellar artery causes:

a) Lateral medullary syndrome

b) Weber syndrome

c) Medial medullary syndrome

d) none

Correct Answer - A

**Answer- A. Lateral medullary syndrome**

The **posterior inferior cerebellar artery (PICA)**, the largest branch of the vertebral artery, is one of the three main arterial blood supplies for the cerebellum, part of the brain.

Occlusion of the posterior inferior cerebellar artery or one of its branches, or of the vertebral artery leads to **lateral medullary syndrome** also called **Wallenberg syndrome**

## 652. What is the tensor of vocal cords:

a) Cricothyroid

b) Lateral Cricoarytenoid

c) Thyroarytenoids

d) Posterior cricoarytenoids

Correct Answer - A

**Answer- A. Cricothyroid**

<b>Cricothyroid :</b>	Tensor of vocal cords.
<b>Lateral cricoarytenoid:</b>	Abductor of vocal cords.
<b>Thyroarytenoid:</b>	Relaxor of vocal cords.
<b>Posterior cricoarytenoid:</b>	Abductor of vocal cords

### **Muscles acting on the Larynx**

#### **Movement**

#### **Muscles**

Elevation of Larynx Thyrohyoid, mylohyoid

Depression of larynx Sternothyroid, sternohyoid

Opening inlet of larynx Thyroepiglotticus

Closing inlet of larynx Aryepiglotticus

**Abductor of vocal cords**

**Posterior cricoarytenoid only**

**Adductor of vocal cords**

**Lateral cricoarytenoid transverse & oblique arytenoids**

**Tensor of vocal**

**ords**

**Cricothyroid**

**Relaxer of vocal  
ords**

**Thyroarytenoid**

### 653. About Sibson's fascia which is incorrect:

a) Attached to the inner border of 2nd rib

b) Covers apical part of lung

c) Part of scalenus anterior muscle

d) Vessel pass above the fascia

Correct Answer - A

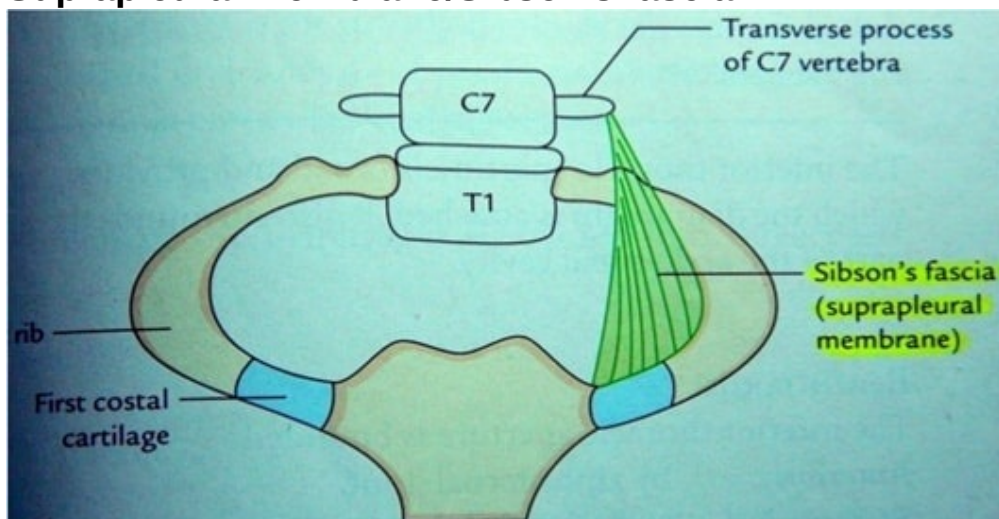
**Answer-A. Attached to the inner border of 2nd rib**

The **suprapleural membrane** is known as **Sibson's fascia**.

It refers to a thickening of connective tissue that covers the apex of each human lung.

It attaches to the **internal border of the first rib** and the transverse processes of **vertebra C7**.

**Suprapleural membrane/Sibson's fascia**



## 654. Ureteric bud develops from:

a) Mesonephros

b) Metanephros

c) Pronephros

d) Genital sinus

Correct Answer - A

**Answer- A. Mesonephros**

The **ureteric bud**, also known as the **metanephrogenic diverticulum**, is a protrusion from the mesonephric duct during the development of the urinary and reproductive organs.

It later develops into a conduit (channel) for urine drainage from the kidneys, which, in contrast, originate from the **metanephric blastema**.

The **metanephrogenic blastema** or metanephric **blastema** (or metanephric mesenchyme, or metanephric mesoderm) is one of the two embryological structures that give rise to the kidney, the other being the ureteric bud.

## 655. About Weber's syndrome which is incorrect:

- a) Contralateral hemiplegia
- b) Ipsilateral Oculomotor nerve palsy
- c) Contralateral Parkinsonism
- d) Anterior cerebral peduncle

Correct Answer - D

### **Answer - D. Anterior cerebral peduncle**

Weber's syndrome (superior alternating hemiplegia) is a form of **stroke** characterized by the presence of an ipsilateral **oculomotor nerve palsy** and contralateral **hemiparesis** or **hemiplegia**.

It is caused by **midbrain infarction** as a result of occlusion of the **paramedian branches** of the **posterior cerebral artery** or basilar bifurcation perforating arteries.

**This lesion is usually unilateral and affects several structures in the midbrain:**

- **Contralateral parkinsonism** because its dopaminergic projections to the basal ganglia innervate the ipsilateral hemisphere motor field, leading to a movement disorder of the contralateral body.
- **Contralateral hemiparesis** and typical upper motor neuron findings. It is contralateral because it occurs before the decussation in the medulla.
- Difficulty with contralateral lower facial muscles and hypoglossal nerve functions.
- **Ipsilateral Oculomotor nerve palsy** with a drooping eyelid and fixed wide pupil pointed down and out. This leads to diplopia.

**656. All are special visceral efferent column  
except -**

a) Glossopharyngeal n

b) Nucleus ambiguus

c) vagus nerve

d) trigeminal nerve

Correct Answer - B

**Answer: B. Nucleus ambiguus**

**Special visceral efferent fibers (SVE)** are the efferent nerve fibers that provide motor innervation to the muscles of the pharyngeal arches in humans, The only nerves containing SVE fibers are cranial nerves: the trigeminal nerve (V), the facial nerve (VII), the glossopharyngeal nerve (IX), the vagus nerve (X) and the accessory nerve

**657. Which of the following statements is not true about iliolumbar ligament?**

a) Upper fibres attached to iliac crest

b) Lower fibres attached to base of sacrum

c) Help in maintaining lumbosacral joint stability

d) Upper attachment to transverse process of T12

Correct Answer - D

**Answer: D - Upper attachment to transverse process of T12**

**The ligament attaches to L5**

**Iliolumbar ligament:**

- Strong ligament passing from **the tip of transverse process of fifth lumbar vertebra** to posterior part of inner lip of iliac crest
- **Upper bands** gets **attached to the iliac crest.**
- **Lower bands** gets **attached to base of sacrum.**
- Major function is to **strengthen the lumbosacral joint.**

**658. Which of the following structure develops from dorsal mesentery?**

a) Greater omentum

b) Lesser omentum

c) Liver

d) Diaphragm

Correct Answer - A

**Ans. A. Greater omentum**

The portion of the **dorsal mesentery** that attaches to the greater curvature of the stomach, is known as the dorsal mesogastrium. The part of the **dorsal mesentery** that suspends the colon is termed the mesocolon. The dorsal mesogastrium **develops** into the greater omentum.

## 659. Chordoma arises from:

a) Pharyngeal bursa

b) Notochord

c) Rathke's pouch

d) Luschka's bursa

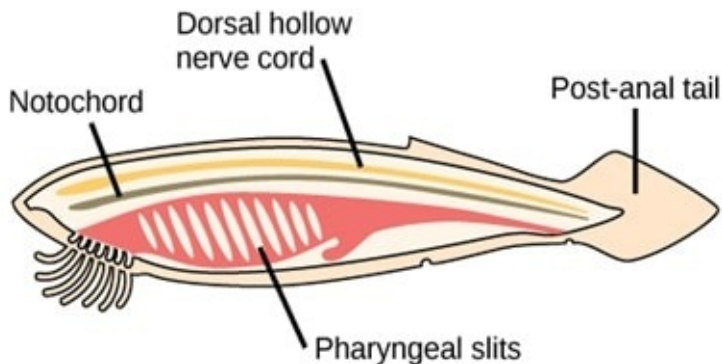
Correct Answer - B

**Answer: - B. Notochord**

Chordoma is a rare slow-growing neoplasm thought to arise from cellular remnants of the notochord.

Chordomas can arise from bone in the skull base and anywhere along the spine. The two most common locations are cranially at the clivus and in the sacrum at the bottom of the spine.

There are three histological variants of chordoma: classical (or "conventional"), chondroid and dedifferentiated.



## 660. Seminal colliculus is present in ?

a) Testis

b) Prostate

c) Urethra

d) Scrotum

Correct Answer - C

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

Seminal colliculus or colliculus seminalis or verumontanum is present in the prostatic urethra.

Features of the prostatic urethra

Urethral crest - median longitudinal mucous fold.

Colliculus seminalis (verumontanum): An elevation in the middle of the urethral crest with the opening of a prostatic utricle at its summit and an ejaculatory duct on each side.

Openings of ejaculatory ducts: These are present on each side of the orifice of the utricle.

Prostatic sinuses: These are vertical grooves present on each side of the urethral crest. They are present with openings of prostatic glands.

**661. Which of the following is not a derivative of foregut?**

a) Cecum

b) duodenum

c) Liver

d) Pancreas

Correct Answer - A

**Ans. is 'a' i.e., Cecum [Ref Langman 11th/e p. 223]:-**

**Derivatives are:-**

- Pharynx
- Lower respiratory tract
- Esophagus
- Stomach
- Duodenum upto the opening of the main pancreatic duct
- Liver
- Pancreas

## 662. Upward movement of the thyroid gland is prevented due to?

- a) Berry ligament
- b) Pretracheal fascia
- c) Sternothyroid muscle
- d) Thyrohyoid membrane

Correct Answer - B

**Ans: B.** Pretracheal fascia

The thyroid gland is covered by a thin fibrous capsule, which has an inner and an outer layer. The inner layer extrudes into the gland and forms the septum that divides the thyroid tissue into microscopic lobules.

The outer layer is continuous with the pretracheal fascia, attaching the gland to the cricoid and thyroid cartilages via a thickening of the fascia to form the posterior suspensory ligament of the thyroid gland also known as Berry's ligament. This causes the thyroid to move up and down with the movement of these cartilages when swallowing occurs.

**Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41e  
,Page no 470**

**663. The reason for the long left recurrent laryngeal nerve is due to the persistence of which arch artery?**

a) 3rd arch

b) 4th arch

c) 5th arch

d) 2nd arch

Correct Answer - B

**Ans: B. 4th arch**

Left RLN winds around the arch of aorta

Arch of aorta is derived from the 4th arch

**Langmans Medical Embryology 13th edition (Page no 88,239)**

## 664. Ligation of the hepatic artery will impair blood supply in

a) Right gastric and Right gastroepiploic artery

b) Right gastric and Left gastric artery

c) Right gastroepiploic and short gastric vessels

d) Right gastric and short gastric vessels

Correct Answer - A

**Ans: A. Right gastric and Right gastroepiploic artery**

The right gastric artery is a branch of the common hepatic artery

The right gastroepiploic artery is a branch of the gastroduodenal artery which is a branch of the common hepatic artery

The left gastric artery is a branch of the celiac trunk

Short gastric vessels arise from the splenic artery

**Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41st Edition (Page nos 1116 and 1117)**

## 665. Wolffian duct remnant in female is

a) Pouch of Douglas

b) Uterovesical pouch

c) Gartner's cyst

d) Broad ligament

Correct Answer - C

**Ans: C. Gartner's cyst**

Gartner's cysts, sometimes incorrectly referred to as vaginal inclusion cysts, are the most common benign cystic lesions of the vagina.

They represent embryological remnants of the caudal end of the mesonephric( Wolffian) duct.

Gartner's ducts are found in about 25% of adult women. Almost one percent of these ducts evolve into Gartner's duct cyst.

**Ref: A case of Gartner's cyst of vagina, J. Anesth Crit care Open Access, 2017, 00259.**

**666. Nerve supply of the extraocular muscles is constituted by all except**

a) Ophthalmic nerve

b) Oculomotor nerve

c) Trochlear nerve

d) Abducent nerve

Correct Answer - A

**Ans: A. Ophthalmic nerve**

Lateral rectus is supplied by 6th cranial nerve( abducent nerve)

Superior rectus is supplied by 4th cranial nerve (trochlear nerve)

All of the remaining extraocular muscles are supplied by the oculomotor nerve. The ophthalmic nerve is a branch of the trigeminal nerve and is purely sensory in nature.

**BDC 7th edition, volume 3, pg no. 215.**

**667. Claudication due to popliteal femoral incompetence is primarily seen in**

a) Thigh

b) Calf

c) Buttocks

d) Feet

Correct Answer - B

**Ans: B. Calf**

Calf

Aorta and Common Iliac- Buttocks

Femoral Artery- Thigh

Superficial femoral artery- Calf and popliteal artery

Posterior tibial Artery- Feet

**BDC 7th edition, volume 2, page no 137.**

**668. Which muscle is paralyzed if there is hyperextension of metacarpophalangeal joint and flexion of the interphalangeal joint?**

a) Extensor digitorum

b) Interossei and lumbricals

c) Adductor pollicis

d) Pronator quadratus muscle

Correct Answer - B

**Ans: B. Interossei and lumbricals**

Hyperextension of metacarpophalangeal joint and flexion of the interphalangeal joint is due to palsy of lumbricals and interossei muscles.

The action of Lumbricals: Flexion of MCP, Extension of IP joint

The action of Palmar interossei: Adduction of fingers

The action of Dorsal interossei: Abduction of fingers

**Ref: BDC, 7th edition, volume 1, pg no. 163.**

**669. Tumour of the uncinata process of the pancreas will compress which artery**

a) Portal vein

b) Superior mesenteric artery

c) Inferior mesenteric artery

d) Common hepatic artery

Correct Answer - B

**Ans: B. Superior mesenteric artery**

The superior mesenteric artery passes anterior to the uncinata process

Posteriorly, the uncinata process is related to aorta.

**Ref: BDC , 7th edition, vol 2, page- 328.**

**670. A boy met with a motorbike accident. CT brain shows injury to the posterior end of the superior temporal gyrus. He is likely to suffer from**

a) Fluent aphasia

b) Non-fluent aphasia

c) Conduction aphasia

d) None of the above

Correct Answer - A

**Ans: A. Fluent aphasia**

Fluent aphasia

Lesions in the posterior portion of the left STG were associated with the loss of the ability to comprehend and produce spoken words which are called as "fluent aphasia"

**BDC 7th edition, volume 4, page no 129.**

**671. A 65-year-old lady presents with a vascular injury to the inferior frontal gyrus. Which functional area would mostly be affected**

a) Visual

b) Auditory

c) Wernicke

d) Motor speech

Correct Answer - D

**Ans: D. Motor speech**

Motor speech defect is also called apraxia of speech.

Injury to the Broca's area/left inferior frontal gyrus causes motor speech defect.

**BDC 7th edition, volume 4, page no 129.**

**672. Where is the highest oxygen concentration presents in fetal circulation**

a) SVC

b) IVC

c) Right ventricle

d) Aorta

Correct Answer - B

**Ans: B. IVC**

**Highly oxygenated blood** from the placenta is carried to the fetus **by the umbilical vein**, which is shunted to the inferior vena cava.

**Nelson Textbook of Pediatrics 20th Edition (Page no 2161)**