NEET PG Anatomy Sample Paper-8

Duration: 15 Minutes **Maximum Marks: 68**

Instructions

- This paper contains **17** Multiple Choice Questions.
- Each correct answer carries **+4** mark. Incorrect answer: **−1** marks. Only **one** correct option.
- Unattempted questions carry **0** marks.
- Use of mobile phones, smartwatches, or any electronic gadgets is strictly prohibited.

Q1. A 45-year-old male presents with severe pain in the right shoulder following a fall. Physical examination reveals loss of the normal rounded contour of the shoulder and an inability to abduct the arm past 15 degrees. A radiograph confirms an anterior dislocation of the glenohumeral joint. Which of the following nerve-artery pairs running in close proximity is at highest risk of injury in this patient?

(A) Radial nerve and Deep brachial artery

(B) Axillary nerve and Posterior circumflex humeral artery

(C) Axillary nerve and Anterior circumflex humeral artery

(D) Suprascapular nerve and Suprascapular artery

Q2. During a routine cholecystectomy, a surgeon carefully dissects the cystohepatic triangle (Triangle of Calot) to ligate the cystic artery. Which of the following structures forms the superior boundary of this anatomical space?

(A) Inferior surface of the liver (segments IVB and V)

(B) Cystic duct

(C) Common hepatic duct

(D) Portal vein

Q3. A patient is diagnosed with a tumor originating from the embryological midgut-hindgut junction. During surgical resection, which arterial branch of the abdominal aorta must be carefully evaluated as it supplies the distal third of the transverse colon?

(A) Middle colic artery

(B) Right colic artery

(C) Left colic artery

(D) Ileocolic artery

Q4. A 62-year-old female presents to the emergency department with acute chest pain. Coronary angiography reveals significant occlusion at the origin of the posterior interventricular artery (posterior descending artery). Assuming a right-dominant coronary circulation, this compromised artery is a direct branch of which vessel?

(A) Left anterior descending artery

(B) Left circumflex artery

(C) Marginal artery

(D) Right coronary artery

Q5. A patient presents with a deep laceration in the mid-palm region. Neurological evaluation demonstrates a loss of sensation on the palmar surface of the lateral three and a half digits, along with weakness in thumb opposition. Which muscle's tendon serves as the crucial anatomical landmark lying directly superficial to the nerve affected within the carpal tunnel?

(A) Flexor carpi radialis

(B) Palmaris longus

(C) Flexor digitorum superficialis

(D) Flexor pollicis longus

Q6. A 30-year-old sportsperson sustains a severe blow to the lateral aspect of the knee joint. MRI reveals a classic injury pattern known as the "unhappy triad"

of O'Donoghue. Which group of structures is entirely involved in this lesion?

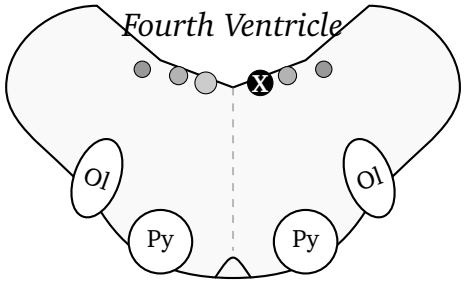
(A) Anterior cruciate ligament, Lateral collateral ligament, Lateral meniscus

(B) Posterior cruciate ligament, Medial collateral ligament, Medial meniscus

(C) Anterior cruciate ligament, Medial collateral ligament, Medial meniscus

(D) Anterior cruciate ligament, Medial collateral ligament, Lateral meniscus

Q7. Refer to the schematic cross-section of the open medulla oblongata provided below:



The highlighted region marked as **X** positioned in the dorsal paramedian aspect of the floor of the fourth ventricle represents the nucleus responsible for tongue movements. Damage to this specific nucleus results in ipsilateral deviation of the tongue upon protrusion. Which nucleus is this?

(A) Nucleus ambiguus

(B) Hypoglossal nucleus

(C) Dorsal motor nucleus of vagus

(D) Solitary nucleus

Q8. A patient presents with a dynamic visual defect described as bitemporal hemianopia. An MRI scan reveals a well-defined pituitary macroadenoma. Which part of the visual pathway is directly compressed by the superior expansion of this tumor?

(A) Optic tract

(B) Ipsilateral optic nerve

(C) Optic chiasm (central crossing fibers)

(D) Lateral geniculate body

Q9. A 58-year-old hypertensive male wakes up with sudden onset numbness and weakness on the left side of his face, arm, and leg. A neurological examination localized the lesion to the posterior limb of the internal capsule. Which major ascending thalamocortical tract passes through this specific region?

(A) Anterior corticospinal tract

(B) Superior thalamic radiation (sensory fibers from VPL/VPM)

(C) Frontopontine tract

(D) Optic radiation

Q10. Occlusion of the anterior spinal artery results in a distinct clinical presentation known as Anterior Cord Syndrome. Which of the following functional spinal pathways remains entirely spared due to its separate posterior circulation supply?

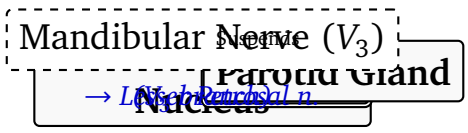
(A) Dorsal column-medial lemniscus pathway

(B) Lateral corticospinal tract

(C) Lateral spinothalamic tract

(D) Anterior corticospinal tract

Q11. Analyze the functional pathway mapping the parasympathetic innervation of a major salivary gland shown below:



Which of the following parasympathetic ganglia correctly completes the missing layout labeled [**?**] in the network above?

(A) Otic ganglion

(B) Ciliary ganglion

(C) Pterygopalatine ganglion

(D) Submandibular ganglion

Q12. During a radical neck dissection for laryngeal carcinoma, a resident accidentally damages a nerve traversing the posterior triangle of the neck over the levator scapulae muscle. Postoperatively, the patient presents with a drooping shoulder and an inability to shrug against resistance. Which nerve was injured?

(A) Spinal accessory nerve (CN XI)

(B) Dorsal scapular nerve

(C) Long thoracic nerve

(D) Phrenic nerve

Q13. A 34-year-old woman complains of altered taste sensation on the anterior two-thirds of her tongue and a reduction in salivation following a middle ear surgery. The nerve involved passes through the petrotympanic fissure to leave the skull. Which nerve is affected?

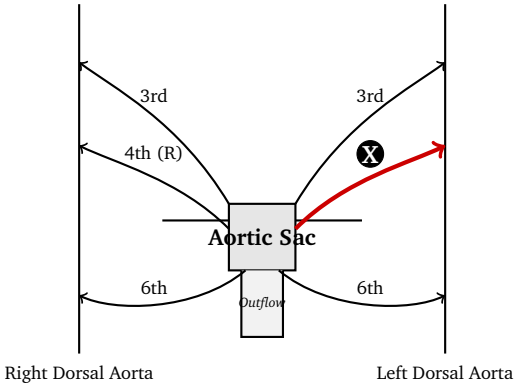
(A) Greater petrosal nerve

(B) Chorda tympani

(C) Lesser petrosal nerve

(D) Lingual nerve proper

Q14. Examine the schematic embryological layout of the pharyngeal arch arteries provided below:



A structural branch derived specifically from the dynamic transformation of the left 4th pharyngeal arch artery (labeled as **X** in the diagram) undergoes significant asymmetrical adaptation to form a critical component of the definitive systemic macrovasculature. What structure does it form?

(A) Left pulmonary artery

(B) Arch of the aorta

(C) Left subclavian artery

(D) Ductus arteriosus

Q15. An infant is born with a congenital defect presenting as an abnormal opening between the left atrium and right atrium near the limbus of the fossa ovalis. This condition arises from the defective development or excessive resorption of which embryological septum?

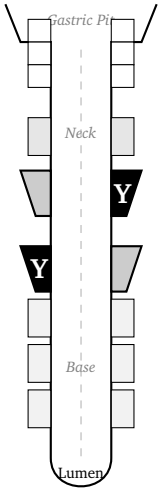
(A) Septum primum

(B) Septum secundum

(C) Septum spurium

(D) Aorticopulmonary septum

Q16. Examine the simplified schematic vertical profile of a gastric gland in the fundic region of the stomach mucosa shown below:



Large, distinct, pyramidal-shaped, intensely eosinophilic cells labeled as **Y** are found located predominantly in the neck and upper regions of the

gland profile. Functionally, these cells use extensive intracellular canaliculi to secrete their product. What is the precise histological identity of these cells?

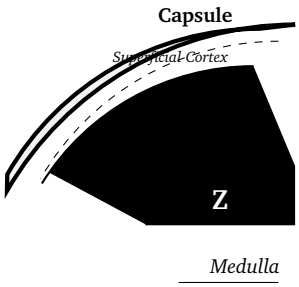
(A) Chief (zymogenic) cells

(B) Parietal (oxyntic) cells

(C) Mucous neck cells

(D) Enteroendocrine (G) cells

Q17. Analyze the structural wedge-slice layout of a normal human lymph node cortex depicted below:



The dynamic histological zone highlighted and labeled as **Z** is situated directly deep to the superficial nodular cortex. It characteristically lacks distinct lymphoid follicles, remains heavily packed with T-lymphocytes, and houses Specialized High Endothelial Venules (HEVs) for lymphocyte homing. What zone is represented by **Z**?

(A) Subcapsular sinus

(B) Germinal center

(C) Paracortex (deep cortex)

(D) Medullary cords

Detailed Solutions

Q1.

Solution

Concept: Anterior glenohumeral dislocation classically compromises structures intimacy-linked to the surgical neck of the humerus. The axillary nerve and the posterior circumflex humeral artery travel together through the quadrangular space, placing them both at high risk during sudden displacement of the humeral head.

Solution:

(a) Anterior shoulder dislocation accounts for the vast majority of shoulder dislocations. The humeral head is displaced anteriorly and inferiorly out of the glenoid cavity, which stretches the surrounding neurovascular structures.

(b) The axillary nerve arises from the posterior cord of the brachial plexus ($C5, C6$) and winds tightly around the surgical neck of the humerus. This direct proximity makes it the most frequently injured nerve in this type of trauma.

(c) Injury to the axillary nerve clinically manifests as paralysis or weakness of the deltoid muscle, which prevents shoulder abduction beyond the first 15 degrees (initiated by the supraspinatus), along with sensory loss over the lateral aspect of the upper arm (the regimental badge area).

(d) The posterior circumflex humeral artery accompanies the axillary nerve through the quadrangular space, meaning it is also susceptible to tearing or occlusion during an anterior displacement.

(e) Although the anterior circumflex humeral artery also loops around the humerus, it does not run directly alongside the main trunk of the axillary nerve within the vulnerable postero-lateral surgical neck zone.

Final Answer: Axillary nerve and Posterior circumflex humeral artery

Answer: (B)

Go Back to Question 1

Q2.

Solution

Concept: The cystohepatic triangle, or Calot's triangle, is an essential surgical anatomical landmark utilized during cholecystectomy to identify and isolate the cystic artery. Safe dissection requires clear visualization of its three primary boundaries.

Solution:

(a) Calot's triangle is anatomically defined by specific margins: the lateral boundary is formed by the cystic duct, the medial boundary is formed by the common hepatic duct, and the superior boundary is formed by the inferior margin of the liver.

(b) Specifically, the segments of the liver contributing to this superior roof are segments IVB and V, which represent the quadrate lobe and adjacent right lobe anatomy.

(c) Identification of this space is standard surgical procedure because the cystic artery, which supplies the gallbladder, passes directly through this triangle. Misidentification of these boundaries risks catastrophic clipping of the common bile duct or hepatic artery.

(d) The portal vein runs posterior to the proper hepatic artery and common bile duct within the hepatoduodenal ligament, meaning it forms a deeper relation rather than a boundary of this superficial triangle.

(e) Therefore, isolating the inferior border of the liver marks the definitive superior limit of dissection during a standard lap-chole presentation.

Final Answer: Inferior surface of the liver (segments IVB and V)

Answer: (A)

Go Back to Question 2

Q3.

Solution

Concept: The gastrointestinal tract is divided embryologically into the foregut, midgut, and hindgut, each supplied by a primary branch of the abdominal aorta. The structural transition between the midgut and hindgut occurs within the transverse colon.

Solution:

(a) The midgut extends from the major duodenal papilla down to the junction between the proximal two-thirds and distal one-third of the transverse colon, and it receives its primary blood supply from the superior mesenteric artery.

(b) The hindgut begins immediately past this junction, extending through the distal third of the transverse colon, descending colon, sigmoid colon, and rectum. It is entirely supplied by the inferior mesenteric artery.

(c) The left colic artery is the first major branch of the inferior mesenteric artery, directly providing oxygenated blood to the descending colon and the distal third of the transverse colon via an anastomotic arcade.

(d) The middle colic and right colic arteries arise from the superior mesenteric artery, meaning they supply the proximal two-thirds of the transverse colon and ascending colon respectively.

(e) Therefore, a lesion at the precise midgut-hindgut junction directly implicates the vascular zone managed by the left colic artery.

Final Answer: Left colic artery

Answer: (C)

Go Back to Question 3

Q4.

Solution

Concept: Coronary dominance is determined by which coronary artery gives rise to the posterior interventricular artery (also called the posterior descending artery, or PDA), which courses along the posterior interventricular sulcus to supply the diaphragmatic surface of the heart.

Solution:

(a) In approximately 70-80% of the human population, the heart exhibits right coronary dominance. This means that the right coronary artery (RCA) travels along the coronary sulcus to the posterior aspect of the heart and gives off the PDA.

(b) In a left-dominant heart (around 10%), the PDA arises from the left circumflex artery (LCX), which is a major branch of the left main coronary artery.

(c) In codominant hearts, the posterior descending artery is formed by contributions from branches of both the right coronary and left circumflex arteries.

(d) Because the patient is specified as having a right-dominant circulation, the occlusion at the origin of the PDA directly implicates the parent vessel, which is the right coronary artery.

(e) The left anterior descending artery runs entirely on the sternocostal/anterior surface within the anterior interventricular sulcus and does not form the PDA trunk.

Final Answer: Right coronary artery

Answer: (D)

Go Back to Question 4

Q5.

Solution

Concept: Carpal tunnel syndrome or direct lacerations affecting the median nerve within the carpal tunnel compromise the lateral digits and recurrent branches to the thenar muscles. Pinpointing palmar landmarks is vital for surgical exploration.

Solution:

(a) The carpal tunnel contains ten distinct structures: the single median nerve, four tendons of the flexor digitorum superficialis, four tendons of the flexor digitorum profundus, and one tendon of the flexor pollicis longus.

(b) The median nerve sits at the most superficial aspect of this tight compartment, positioned directly underneath the flexor retinaculum (transverse carpal ligament).

(c) When mapping relationships from superficial to deep in the wrist midline, the tendon of the palmaris longus (if present) runs directly superficial to the flexor retinaculum, serving as an external guide to the path of the median nerve.

(d) Within the sub-retinacular space itself, the tendons of the flexor digitorum superficialis are layered, and their superficial position relative to other tendons makes them a direct deep boundary to the nerve.

(e) The tendon of the flexor carpi radialis travels through its own separate fascial tunnel along the groove of the trapezium, outside the main boundary of the carpal tunnel.

Final Answer: Flexor digitorum superficialis

Answer: (C)

Go Back to Question 5

Q6.

Solution

Concept: The "unhappy triad" of O'Donoghue describes a classic multi-ligament knee injury presentation resulting from a severe lateral blow to the knee. This force causes excessive valgus stress coupled with external rotation of the tibia.

Solution:

(a) A forceful impact applied to the lateral side of the knee joint drives the knee medially (valgus stress). This forces the joint line open on the medial aspect, severely tearing the medial collateral ligament (MCL).

(b) Because the deep surface of the medial collateral ligament is firmly attached directly to the periphery of the medial meniscus, an acute tear of the MCL very frequently propagates into a structural tear of the medial meniscus.

(c) As the tibia is driven into external rotation and displaced anteriorly relative to the femur during the impact, the sudden structural load exceeds the tensile strength of the anterior cruciate ligament (ACL), resulting in a full or partial tear.

(d) Modern orthopedic studies show lateral meniscus involvement can occur during non-contact sports tracking, but classic anatomy teaching boards maintain the triad as ACL, MCL, and medial meniscus.

(e) The lateral collateral ligament sits on the opposite aspect of the joint and remains unstressed by valgus force.

Final Answer: Anterior cruciate ligament, Medial collateral ligament, Medial meniscus

Answer: (C)

Go Back to Question 6

Q7.

Solution

Concept: The dorsal floor of the fourth ventricle (rhomboid fossa) in the open medulla contains vital cranial nerve nuclei organized into distinct columns. Somatic motor nuclei sit closest to the midline paramedian position.

Solution:

(a) In the open medulla, the sulcus limitans separates medial motor regions from lateral sensory regions. The somatic motor column sits adjacent to the median sulcus, creating the hypoglossal trigone.

(b) The hypoglossal nucleus houses lower motor neurons that form the hypoglossal nerve (CN XII), which exits the medulla via the anterolateral sulcus to provide exclusive motor innervation to the intrinsic and extrinsic muscles of the tongue (except the palatoglossus).

(c) A lesion of the hypoglossal nucleus results in ipsilateral lower motor neuron paralysis. When the patient protrudes the tongue, the functional contralateral genioglossus muscle pushes uninhibited, causing the tongue to deviate toward the injured side.

(d) The dorsal motor nucleus of the vagus sits lateral to the hypoglossal nucleus in the vagal trigone and supplies parasympathetic autonomic output.

(e) The nucleus ambiguus resides deep within the reticular formation rather than on the ventricular floor, and the solitary nucleus handles visceral afferent sensory information.

Final Answer: Hypoglossal nucleus

Answer: (B)

Go Back to Question 7

Q8.

Solution

Concept: The spatial relationship between the pituitary gland and the optic chiasm is a critical anatomical link in neuro-ophthalmology. Mass effects from the sella turcica cause predictable visual field deficits based on nerve topography.

Solution:

(a) The pituitary gland is located inside the sella turcica of the sphenoid bone, positioned directly inferior to the optic chiasm, separated only by the diaphragma sellae.

(b) As a pituitary macroadenoma grows larger than 10 mm, it expands superiorly, breaches the diaphragma sellae, and compresses the central crossing fibers of the optic chiasm.

(c) These decussating central fibers originate from the nasal retina of each eye, which are responsible for collecting visual information from the temporal half of the visual field for both sides.

(d) Compression of these decussating fibers prevents signal transmission from both nasal retinae, producing bitemporal hemianopia, where the patient loses peripheral vision on both the left and right sides.

(e) The optic tracts or lateral portions of the chiasm contain uncrossed ipsilateral temporal retinal fibers, which process the nasal visual fields and are spared during early central compression.

Final Answer: Optic chiasm (central crossing fibers)

Answer: (C)

Go Back to Question 8

Q9.

Solution

Concept: The internal capsule is a compact white matter structure containing highly organized ascending and descending projection fibers. Ischemic lesions within its posterior limb disrupt specific motor and sensory functional pathways.

Solution:

(a) The internal capsule is divided into an anterior limb, genu, posterior limb, retrolenticular part, and sublenticular part.

(b) The posterior limb is bordered medially by the thalamus and laterally by the globus pallidus and putamen. It contains critical descending motor pathways (corticospinal fibers) and ascending sensory pathways.

(c) The primary ascending pathway within the posterior limb is the superior thalamic radiation. This tract carries third-order sensory neurons from the ventral posterolateral (VPL) and ventral posteromedial (VPM) nuclei of the thalamus up to the primary somatosensory cortex.

(d) Disruption of these thalamocortical fibers causes a complete contralateral loss of sensation across the face, arm, and leg, matching the patient's presentation.

(e) The frontopontine tract travels through the anterior limb, the corticobulbar fibers run through the genu, and the optic radiation passes through the retrolenticular and sublenticular portions.

Final Answer: Superior thalamic radiation (sensory fibers from VPL/VPM)

Answer: (B)

Go Back to Question 9

Q10.

Solution

Concept: The spinal cord receives its blood supply from one anterior spinal artery and two posterior spinal arteries. Occlusion of the anterior spinal artery selectively damages the anterior two-thirds of the spinal cord while sparing the posterior third.

Solution:

(a) The anterior spinal artery arises from the vertebral arteries and runs down the anterior median fissure, supplying the anterior horns, lateral corticospinal tracts, and anterolateral spinothalamic tracts.

(b) Occlusion of this artery leads to bilateral loss of motor function (corticospinal tract damage) and bilateral loss of pain and temperature sensation (lateral spinothalamic tract damage) below the level of the lesion.

(c) The posterior spinal arteries supply the posterior columns, which contain the fasciculus gracilis and fasciculus cuneatus. These structures form the dorsal column-medial lemniscus pathway.

(d) Because the posterior circulation remains intact during an anterior spinal artery occlusion, the functions carried by the dorsal columns—fine touch, vibration sense, and conscious proprioception—are completely preserved.

(e) This clinical presentation is known as Anterior Cord Syndrome and is characterized by a distinct dissociation of sensory loss.

Final Answer: Dorsal column-medial lemniscus pathway

Answer: (A)

Go Back to Question 10

Q11.

Solution

Concept: The parasympathetic pathways supplying the major salivary glands follow highly organized trajectories through specific cranial nerve networks and peripheral ganglia before reaching their final visceral targets.

Solution:

(a) Secretomotor fibers destined for the parotid salivary gland originate in the inferior salivatory nucleus within the dorsal pons/medulla area.

(b) These preganglionic parasympathetic axons leave the brainstem via the glossopharyngeal nerve (CN IX) and travel through its tympanic branch into the tympanic plexus.

(c) They coalesce to exit the middle ear cavity as the lesser petrosal nerve, which passes through the foramen ovale into the infratemporal fossa.

(d) The lesser petrosal nerve terminates by synapsing in the otic ganglion, which is structurally suspended from the posterior division of the mandibular nerve (V3).

(e) Postganglionic secretomotor axons leave the otic ganglion and hitchhike along the auriculotemporal nerve to reach the glandular parenchyma of the parotid gland.

Final Answer: Otic ganglion

Answer: (A)

Go Back to Question 11

Q12.

Solution

Concept: Radical neck dissections carry an inherent risk of damage to the somatic motor nerves passing superficial to the deep prevertebral fascia of the posterior cervical triangle.

Solution:

(a) The posterior triangle of the neck contains important neurovascular elements embedded in its fascial roof and floor, including the spinal accessory nerve.

(b) The spinal accessory nerve (CN XI) emerges from beneath the posterior border of the sternocleidomastoid muscle and runs obliquely downward across the levator scapulae muscle.

(c) Because of its highly superficial course within the investing layer of deep cervical fascia, it is exceptionally vulnerable to accidental surgical transection or traction injury.

(d) CN XI provides exclusive somatic motor supply to the sternocleidomastoid and trapezius muscles, which are key postural muscles of the neck and shoulder girdle.

(e) Injury presents clinically as unilateral wasting of the trapezius muscle, loss of the shoulder's upper horizontal contour, a dropping scapula, and a distinct inability to shrug against resistance.

Final Answer: Spinal accessory nerve (CN XI)

Answer: (A)

Go Back to Question 12

Q13.

Solution

Concept: Middle ear pathologies or otomastoid surgeries can directly injure nerves that traverse the tympanic cavity wall, leading to combined gustatory and autonomic secretomotor deficits.

Solution:

(a) The chorda tympani is a specialized branch of the facial nerve (CN VII) that arises from the mastoid segment of the facial canal.

(b) It enters the middle ear cavity from the posterior wall, crosses the medial surface of the tympanic membrane, and passes directly over the handle of the malleus.

(c) The nerve exits the skull through the medial aspect of the petrotympanic fissure to join the lingual nerve in the infratemporal fossa.

(d) It carries preganglionic parasympathetic secretomotor fibers to the submandibular ganglion and special visceral afferent fibers for taste from the anterior two-thirds of the tongue.

(e) Surgical trauma to this tympanic path results in ipsilateral hypogeusia (loss of taste) and a marked reduction in submandibular and sublingual salivary output.

Final Answer: Chorda tympani

Answer: (B)

Go Back to Question 13

Q14.

Solution

Concept: The pharyngeal arch arteries arise from the aortic sac during early embryonic life and undergo a highly asymmetrical remodeling process to form the adult great vessels.

Solution:

(a) The branchial arch system develops six pairs of arteries connecting the ventral aortic sac to the bilateral dorsal aortae, which undergo selective regression.

(b) The right fourth pharyngeal arch artery forms the proximal segment of the right subclavian artery, whereas the distal portion is derived from the right dorsal aorta.

(c) The left fourth pharyngeal arch artery undergoes completely different development, persisting as a major trunk of the definitive systemic macrovasculature.

(d) It forms the main structural segment of the arch of the aorta, specifically between the origin of the left common carotid and the left subclavian artery.

(e) The proximal segment of the left sixth arch becomes the left pulmonary artery, while its distal section forms the ductus arteriosus.

Final Answer: Arch of the aorta

Answer: (B)

Go Back to Question 14

Q15.

Solution

Concept: The partitioning of the primitive embryonic atrium requires the sequential growth and overlapping placement of two distinct sagittal septa to form a functional valve mechanism.
Solution:

(a) The septum primum grows downward from the roof of the common atrium toward the endocardial cushions, closing the ostium primum while developing an upper ostium secundum.

(b) Subsequently, the thicker crescent-shaped septum secundum grows immediately to the right of the septum primum, but it stops short of fully partitioning the atria.

(c) The remaining crescentic edge of the septum secundum forms a structural rim known as the limbus of the fossa ovalis in the mature right atrium.

(d) The persistent opening beneath this margin is the foramen ovale, which is covered on its left atrial aspect by the mobile lower portion of the septum primum.

(e) Excessive resorption of the septum primum or poor growth of the septum secundum prevents proper overlap, leading to a secundum-type atrial septal defect.

Final Answer: Septum secundum

Answer: (B)

Go Back to Question 15

Q16.

Solution

Concept: The fundic gastric glands possess a specialized cytological architecture, with distinct cell types segregated into the istmian, neck, and basal regions based on functional specialization.

Solution:

(a) Gastric pits lead directly into branched, tubular fundic glands. The neck region contains mucous neck cells interspersed with scattered pyramidal cells.

(b) Parietal cells, also known as oxyntic cells, are large, spherical or pyramidal cells with central round nuclei that stain intensely eosinophilic.

(c) Their cytoplasm appears bright pink on standard H and E staining due to an abundance of mitochondria required to drive active ion transport mechanisms.

(d) Ultrastructurally, parietal cells possess deep, invaginated plasma membranes called intracellular canaliculi lined with microvilli to optimize the secretion of hydrochloric acid and intrinsic factor.

(e) Chief cells, or zymogenic cells, populate the deep basal third of the gland and exhibit basophilic cytoplasm due to their dense rough endoplasmic reticulum networks.

Final Answer: Parietal (oxyntic) cells

Answer: (B)

Go Back to Question 16

Q17.

Solution

Concept: The histological architecture of the human lymph node is compartmentalized into specific structural zones that optimize cellular interactions and immune response orchestration.

Solution:

(a) A lymph node is enveloped by a dense connective tissue capsule and is divided into an outer cortex, a middle paracortex, and an inner medulla.

(b) The superficial cortex contains prominent rounded lymphoid follicles or nodules, which represent the specialized B-cell dependent zones of the peripheral lymphoid tissue.

(c) The paracortex, or deep cortex, is situated directly between the nodular superficial cortex and the organized cord-like tissue of the inner medulla.

(d) This paracortical zone lacks follicles, is heavily populated by migrating T-lymphocytes, and features high endothelial venules lined by simple cuboidal epithelium.

(e) These specialized high endothelial venules express specific cell-adhesion molecules that facilitate the homing and extravasation of circulating lymphocytes from the bloodstream into the node.

Final Answer: Paracortex (deep cortex)

Answer: (C)

Go Back to Question 17

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	C	4	D	5	C
6	C	7	B	8	C	9	B	10	A
11	A	12	A	13	B	14	B	15	B
16	B	17	C						