NEET MDS General Anatomy

Sample Paper – 3

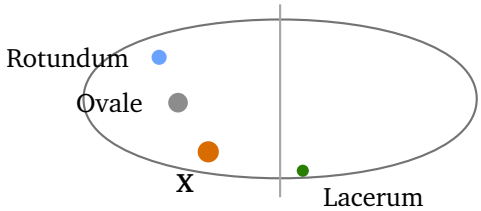
Duration: 11 Minutes **Maximum Marks: 56**

Instructions

- This paper contains **14** Multiple Choice Questions (Single Best Response), modelled on the General Anatomy including Embryology and Histology content of **NEET MDS** conducted by NBEMS.
- The **14-question** length matches the number of General Anatomy items you actually meet in the real 240-question paper.
- Each correct answer carries **+4 marks**. There is **negative marking of 1 mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- Attempt this practice paper in one timed sitting of about **11 minutes**, the pace the real computer-based test demands.

Head and Neck Osteology

Q1. The smallest of the sphenoidal foramina, marked **X** below, lies just posterolateral to the foramen ovale in the greater wing of the sphenoid and opens directly into the middle cranial fossa. The vessel that enters the cranial cavity through **X** to supply the dura is:



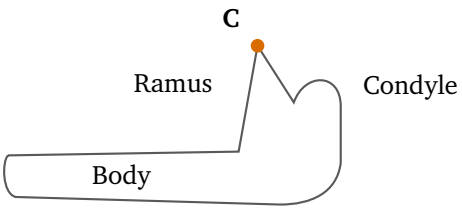
(A) The maxillary division of the trigeminal nerve

(B) The middle meningeal artery

(C) The internal carotid artery

(D) The maxillary artery

Q2. In the lateral view of the mandible below, the flat triangular process marked **C** projects upward from the anterior part of the ramus. The muscle that inserts into its tip, its anterior border and its medial surface is the:



(A) Temporalis

(B) Masseter

(C) Medial pterygoid

(D) Lateral pterygoid

Q3. On an intraoral periapical radiograph you see a small rounded radiolucency close to a premolar apex, which you correctly report as a normal anatomical landmark rather than a periapical lesion. This landmark, the mental foramen, normally lies:

(A) On the medial surface of the ramus, just below the lingula

(B) On the external surface of the mandible, below the apex of the lateral incisor

(C) On the lingual surface of the body, below the apex of the first molar

(D) On the external surface of the body, below and between the apices of the two premolars

Cranial Nerves

Q4. A patient reports numbness to touch, pain and temperature over the right anterior two-thirds of the tongue after a difficult third molar surgery. The nerve carrying this general sensation is the:

(A) Chorda tympani, a branch of the facial nerve

(B) Glossopharyngeal nerve

(C) Hypoglossal nerve

(D) Lingual nerve, a branch of the mandibular division of the trigeminal nerve

Q5. A patient has lost both taste and general sensation over the posterior third of the tongue on the left side, and the gag reflex cannot be elicited from that side. The nerve involved is the:

(A) Lingual nerve

(B) Glossopharyngeal nerve

(C) Facial nerve, through the chorda tympani

(D) Hypoglossal nerve

Q6. Two days after a total thyroidectomy, a patient is persistently hoarse and laryngoscopy shows the left vocal cord lying immobile in the paramedian position. The nerve most likely damaged during ligation of the inferior thyroid artery is the:

(A) Recurrent laryngeal branch of the vagus nerve

(B) External laryngeal branch of the superior laryngeal nerve

(C) Internal laryngeal branch of the superior laryngeal nerve

(D) Glossopharyngeal nerve

Muscles, Temporomandibular Joint and Triangles of the Neck

Q7. After a patient protrudes the jaw, the mandible is drawn straight back into the retruded position by a set of nearly horizontal fibres running forwards above the zygomatic arch. These retracting fibres are the posterior fibres of the:

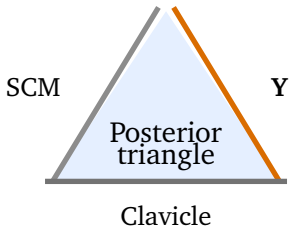
(A) Masseter

(B) Medial pterygoid

(C) Temporalis

(D) Lateral pterygoid

Q8. In the schematic of the side of the neck below, the shaded posterior triangle is bounded in front by the posterior border of sternocleidomastoid and below by the middle third of the clavicle. The structure marked **Y**, which forms its posterior boundary, is:



(A) The anterior border of sternocleidomastoid

(B) The anterior border of trapezius

(C) The superior belly of omohyoid

(D) The posterior belly of digastric

General Embryology and Pharyngeal Arches

Q9. The muscles that develop from the mesoderm of the second pharyngeal arch, and therefore all keep the nerve of that arch wherever they migrate, are:

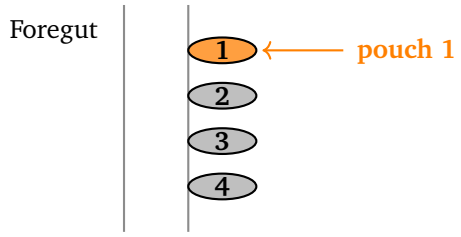
(A) The muscles of mastication, mylohyoid, tensor tympani and tensor veli palatini

(B) The muscles of facial expression, stapedius, stylohyoid and the posterior belly of digastric

(C) Stylopharyngeus alone

(D) The pharyngeal constrictors, levator veli palatini and cricothyroid

Q10. The endodermal pharyngeal pouches are numbered in the schematic below. The pouch marked **1** elongates as the tubotympanic recess, and therefore gives rise to:



(A) The palatine tonsil

(B) The inferior parathyroid gland and the thymus

(C) The auditory (Eustachian) tube and the middle ear cavity

(D) The superior parathyroid gland and the ultimobranchial body

Q11. The secondary palate is completed when the two palatine shelves of the maxillary processes meet in the midline. This event takes place:

(A) Between weeks 8 and 12, the shelves rotating from a vertical position beside the tongue to a horizontal one above it as the tongue descends, then fusing from front to back

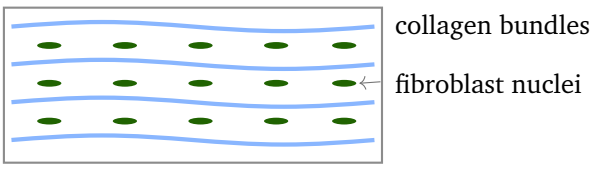
(B) Between weeks 4 and 5, the shelves growing horizontally from the start and fusing from back to front

(C) In week 3, by fusion of the two mandibular processes across the midline

(D) Between weeks 14 and 16, by fusion of the lateral nasal processes with each other

General Histology

Q12. The longitudinal section below is taken from a tendon. It shows thick collagen bundles running parallel to one another along a single axis, with flattened fibroblast nuclei squeezed into rows between them and almost no ground substance. This tissue is classified as:



(A) Loose areolar connective tissue

(B) Dense irregular connective tissue

(C) Elastic connective tissue

(D) Dense regular connective tissue

Q13. A unicellular exocrine gland is scattered among the lining cells of the tracheal and intestinal epithelium. It has a narrow basal stalk holding the nucleus and a distended apex packed with pale mucinogen granules that stain with PAS. This cell is the:

(A) Goblet cell

(B) Paneth cell

(C) Plasma cell

(D) Serous acinar cell

Vascular and Lymphatic Supply of the Head and Neck

Q14. The branch of the external carotid artery that arises opposite the tip of the greater cornu of the hyoid bone and reaches the tongue by passing deep to hyoglossus is the:

(A) Superior thyroid artery

(B) Maxillary artery

(C) Lingual artery

(D) Ascending pharyngeal artery

Detailed Solutions

Q1.

Solution

Concept – the foramen spinosum and its contents: The greater wing of the sphenoid carries three foramina in a fixed anteromedial to posterolateral order.

Step 1 – read the position given: X lies just posterolateral to the foramen ovale, which the diagram marks separately.

Step 2 – name the foramen in that position: The opening posterolateral to ovale, and the smallest of the three, is the **foramen spinosum**.

Step 3 – recall what it transmits: The foramen spinosum transmits the **middle meningeal artery**, together with its accompanying veins and the nervus spinosus, the meningeal branch of V3.

Step 4 – confirm with the clue about supply: The question says the vessel supplies the dura, and the middle meningeal artery is the principal arterial supply of the cranial dura mater.

Step 5 – trace where it comes from: It is a branch of the first (mandibular) part of the maxillary artery, given off in the infratemporal fossa, and it runs upward through spinosum into the middle cranial fossa.

Why the other options are wrong:

- A, the maxillary division of the trigeminal nerve: passes through the foramen **rotundum**, marked separately in the diagram, and it is a nerve, not a vessel.
- C, the internal carotid artery: enters through the carotid canal and passes above the foramen lacerum, which the diagram also marks separately.
- D, the maxillary artery: stays outside the skull in the infratemporal and pterygopalatine fossae. Only its middle meningeal branch enters the cranial cavity.

Final Answer: The middle meningeal artery $\Rightarrow$ B

Answer: (B) Go Back to Q1

Q2.

Solution

Concept – the coronoid process: The upper end of the ramus of the mandible carries two processes separated by the mandibular notch.

Step 1 – identify the process marked C: The anterior of the two, flat and triangular with a pointed tip, is the **coronoid process**. The posterior rounded one is the condyle, labelled in the diagram.

Step 2 – recall what attaches there: The **temporalis** converges into a strong tendon that grips the coronoid process on its tip, its anterior border and its medial surface, and runs down the anterior border of the ramus almost to the last molar.

Step 3 – explain why the attachment is that wide: The temporalis is a fan-shaped muscle arising from the whole temporal fossa, so its fibres funnel deep to the zygomatic arch and need a broad bony grip.

Step 4 – link the attachment to function: Pulling on the coronoid process elevates the mandible, and because the posterior fibres run nearly horizontally forwards, they also retract it.

Why the other options are wrong:

- B, the masseter: inserts on the **lateral** surface of the ramus and the angle, not on the coronoid process.
- C, the medial pterygoid: inserts on the **medial** surface of the ramus and angle, forming a sling with the masseter.
- D, the lateral pterygoid: inserts into the pterygoid fovea on the neck of the **condyle** and into the articular disc, which is the other process in the diagram.

Final Answer: Temporalis $\Rightarrow$ A

Answer: (A) Go Back to Q2

Q3.

Solution

Concept – the mental foramen as a radiographic landmark: Every normal opening in bone shows up as a radiolucency, and the mental foramen is the one that most often mimics disease.

Step 1 – fix its surface: The mental foramen opens on the **external (buccal) surface** of the body of the mandible, facing backwards and upwards.

Step 2 – fix its horizontal position: It lies **below and between the apices of the two premolars**, most often nearer the second premolar in an adult.

Step 3 – fix its vertical position: It lies midway between the upper and lower borders of the body in a dentate adult. With age and alveolar resorption it comes to lie closer to the crest, and in a badly resorbed edentulous mandible it may open on the crest itself.

Step 4 – state what emerges: The mental nerve and vessels emerge here as the terminal continuation of the inferior alveolar bundle, supplying the chin and lower lip.

Step 5 – apply the radiographic point: Because the foramen projects near a premolar apex, it can be misread as a periapical radiolucency. The tooth being vital, and a shift of the radiolucency away from the apex when the tube angle is changed, confirm it is the foramen.

Why the other options are wrong:

- A, the medial surface of the ramus below the lingula: is where the inferior alveolar bundle **enters** the bone, not where it leaves.
- B, below the lateral incisor: is too far forward. The incisive canal continues forward from that region, but the foramen itself is at the premolars.
- C, the lingual surface below the first molar: is wrong on both counts. The foramen is buccal, not lingual, and it is anterior to the molars.

Final Answer: On the external surface of the body, below and between the premolar apices $\Rightarrow$ D

Answer: (D) Go Back to Q3

Q4.

Solution

Concept – general sensation from the anterior tongue: The tongue is supplied by different nerves for different modalities and for different parts.

Step 1 – separate the modalities in the question: Touch, pain and temperature are **general sensation**, not taste.

Step 2 – recall the nerve for the anterior two-thirds: General sensation from the anterior two-thirds is carried by the **lingual nerve**, a branch of the posterior division of the mandibular nerve (V3).

Step 3 – explain it developmentally: The anterior two-thirds arises from the first pharyngeal arch, so it keeps the nerve of that arch, the trigeminal, for general

sensation.

Step 4 – fit the clinical setting: The lingual nerve runs on the lateral surface of the tongue, close to the lingual plate at the third molar region. Retraction, a lingual flap or a bur can injure it there, which is exactly what has happened here.

Step 5 – note what would also be affected: Because taste fibres from the chorda tympani are hitch-hiking on the lingual nerve at that point, such an injury usually blunts taste as well. The question, however, asks only who carries the general sensation.

Why the other options are wrong:

- A, the chorda tympani: carries **taste** from the anterior two-thirds and secretomotor fibres to the submandibular and sublingual glands. It carries no general sensation.
- B, the glossopharyngeal nerve: supplies the **posterior third**, not the anterior two-thirds.
- C, the hypoglossal nerve: is purely **motor** to the tongue muscles and carries no sensation at all.

Final Answer: Lingual nerve, a branch of the mandibular division $\Rightarrow$ D

Answer: (D) Go Back to Q4

Q5.

Solution

Concept – the glossopharyngeal nerve and the posterior third of the tongue: One nerve carries both sensory modalities behind the sulcus terminalis.

Step 1 – read the site of loss: The deficit is confined to the **posterior third** of the tongue.

Step 2 – recall the sensory supply there: Both **taste and general sensation** from the posterior third travel in the **glossopharyngeal nerve (IX)**, which is unusual, since the anterior two-thirds needs two nerves for the same job.

Step 3 – explain it developmentally: The posterior third develops from the hypobranchial eminence of the third pharyngeal arch, and the nerve of arch 3 is the glossopharyngeal, so it keeps both modalities.

Step 4 – use the gag reflex clue: The glossopharyngeal nerve is the **afferent** limb of the gag reflex, carrying sensation from the oropharynx and tonsillar region. The vagus is the efferent limb. Loss of the reflex on stimulating that side therefore confirms a IX lesion.

Step 5 – combine the findings: Taste loss, general sensory loss and an absent gag on the same side all converge on the glossopharyngeal nerve.

Why the other options are wrong:

- A, the lingual nerve: supplies general sensation to the **anterior two-thirds** only, and plays no part in the gag reflex.
- C, the facial nerve through the chorda tympani: carries taste from the **anterior two-thirds**, not the posterior third.
- D, the hypoglossal nerve: is motor only. Its lesion would cause tongue deviation and wasting, not sensory loss.

Final Answer: Glossopharyngeal nerve $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept – the recurrent laryngeal nerve in thyroid surgery: The nerve supplying almost the whole larynx runs in the surgeon's field at the thyroid.

Step 1 – read the deficit: The voice is hoarse and one vocal cord is immobile, so the **motor** supply of the larynx has failed.

Step 2 – recall who supplies the laryngeal muscles: The **recurrent laryngeal branch of the vagus** supplies all the intrinsic muscles of the larynx except cricothyroid, and that includes the posterior cricoarytenoid, the only abductor of the cord.

Step 3 – link the anatomy to the operation: The recurrent laryngeal nerve ascends in the tracheo-oesophageal groove and passes very close to, or between, the terminal branches of the **inferior thyroid artery** before entering the larynx. Ligating that artery in bulk is the classic way to catch it.

Step 4 – explain the paramedian position: With the abductor paralysed, the unopposed adductors hold the cord near the midline, giving the paramedian position seen on laryngoscopy.

Step 5 – note the bilateral case: If both nerves are cut, both cords sit paramedian, the airway narrows to a slit and the patient develops stridor needing an emergency airway. That contrast confirms the nerve identified here.

Why the other options are wrong:

- B, the external laryngeal nerve: runs with the **superior** thyroid artery,

not the inferior, and supplies only cricothyroid. Its injury causes a weak, monotonous voice with loss of high pitch, not an immobile cord.
- C, the internal laryngeal nerve: is **sensory** to the larynx above the cords. Its injury causes anaesthesia and aspiration, not hoarseness with a fixed cord.
- D, the glossopharyngeal nerve: is nowhere near the thyroid bed and does not supply the laryngeal muscles.

Final Answer: Recurrent laryngeal branch of the vagus nerve $\Rightarrow$ A

Answer: (A) Go Back to Q6

Q7.

Solution

Concept – retraction of the mandible: Retraction is the reverse of protraction, and it needs fibres that pull the condyle backwards.

Step 1 – read the direction of the fibres: The question describes nearly horizontal fibres running **forwards** above the zygomatic arch to reach the mandible.

Step 2 – name the muscle with such fibres: Only the **temporalis** has them. Its anterior fibres are vertical, its middle fibres oblique, and its posterior fibres run almost horizontally forwards from the temporal fossa, hooking deep to the zygomatic arch to reach the coronoid process.

Step 3 – work out the pull: A fibre running forwards to its insertion pulls the insertion backwards when it shortens, so the posterior fibres drag the coronoid process, and with it the whole mandible, **backwards**.

Step 4 – name the movement: That backward pull returns the condyle from the articular eminence into the mandibular fossa, which is **retraction**.

Step 5 – fit it into the chewing cycle: Protraction by the lateral pterygoid, then retraction by the posterior temporalis, gives the forward and backward excursion of chewing, and retraction restores the intercuspal position.

Why the other options are wrong:

- A, the masseter: runs downwards and backwards from the zygomatic arch to the ramus and is an **elevator**. Its superficial fibres in fact assist slight protraction.
- B, the medial pterygoid: runs downwards and backwards to the angle, elevating the mandible and assisting protraction, not retraction.
- D, the lateral pterygoid: is the muscle that **protracts** the mandible, so it produces exactly the movement being reversed here.

Final Answer: Temporalis ⇒ C

Answer: (C) Go Back to Q7

Q8.

Solution

Concept – boundaries of the posterior triangle of the neck: The posterior triangle is the space behind sternocleidomastoid on the side of the neck.

Step 1 – list the three boundaries: In front, the posterior border of sternocleidomastoid; behind, the **anterior border of trapezius**; below, the middle third of the clavicle. The apex lies where the two muscles meet on the superior nuchal line.

Step 2 – read what the question already gives: Two boundaries are stated in the stem, so the structure marked **Y** must be the third, the anterior border of trapezius.

Step 3 – confirm from the diagram: Y is the band running from the lateral part of the clavicle up to the apex, behind the shaded space, which is where trapezius lies.

Step 4 – check with the contents: The triangle contains the accessory nerve crossing its floor, the roots and trunks of the brachial plexus, the third part of the subclavian artery and the inferior belly of omohyoid, which subdivides it into occipital and supraclavicular parts.

Why the other options are wrong:

- A, the anterior border of sternocleidomastoid: bounds the **anterior** triangle. It is the **posterior** border of that muscle which bounds this triangle, and the stem has already given it.
- C, the superior belly of omohyoid: lies in the anterior triangle. It is the **inferior** belly that crosses the posterior triangle, and it divides the triangle rather than bounding it.
- D, the posterior belly of digastric: lies high in the anterior triangle, forming the upper boundary of the carotid and submandibular triangles.

Final Answer: The anterior border of trapezius ⇒ B

Answer: (B) Go Back to Q8

Q9.

Solution

Concept – muscle derivatives of the pharyngeal arches: Each arch builds its own muscles, and those muscles carry the nerve of their arch to wherever they end up.

Step 1 – name the second arch: The second arch is the hyoid arch, and its nerve is the facial nerve (VII).

Step 2 – list its muscles: The **muscles of facial expression**, **stapedius**, **stylohyoid** and the **posterior belly of digastric**. The auricular muscles, buccinator and platysma belong to the facial expression group.

Step 3 – verify with the nerve supply: Every muscle in that list is supplied by a branch of the facial nerve: the terminal branches for the face, the nerve to stapedius in the middle ear, and the digastric and stylohyoid branches in the neck.

Step 4 – use the migration point: The second arch mesoderm spreads widely over the face and scalp, far from the arch itself, yet it keeps its nerve. This is why a single facial nerve lesion paralyses the whole side of the face.

Step 5 – discard the alternatives: Any option containing muscles supplied by a nerve other than VII cannot be a second arch list.

Why the other options are wrong:

- A, the muscles of mastication with mylohyoid, tensor tympani and tensor veli palatini: are **first** arch muscles, all supplied by the mandibular division of the trigeminal nerve.
- C, stylopharyngeus alone: is the sole **third** arch muscle, supplied by the glossopharyngeal nerve.
- D, the constrictors, levator veli palatini and cricothyroid: are **fourth** arch muscles supplied by the vagus through the pharyngeal plexus and the external laryngeal nerve.

Final Answer: Muscles of facial expression, stapedius, stylohyoid and posterior belly of digastric $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q9

Q10.

Solution

Concept – the derivatives of the pharyngeal pouches: The pouches are endodermal outpocketings of the foregut between the arches, and each has a fixed fate.

Step 1 – read the clue in the stem: The stem says pouch 1 elongates as the **tubotympanic recess**, which is the name given to the stalk and expanded tip of that pouch.

Step 2 – follow the stalk: The narrow proximal stalk stays connected to the pharynx and becomes the **auditory (Eustachian) tube**.

Step 3 – follow the tip: The expanded distal end contacts the first ectodermal cleft and becomes the **middle ear (tympanic) cavity**, whose endodermal lining also covers the ossicles and forms the inner layer of the tympanic membrane.

Step 4 – note the clinical link: Because the tube is an endodermal remnant of the pharynx, the middle ear stays in open continuity with the nasopharynx. That is why infection travels up the tube in children, in whom it is short and horizontal.

Why the other options are wrong:

- A, the palatine tonsil: develops from the **second** pouch, whose endoderm forms the tonsillar surface epithelium and crypts.
- B, the inferior parathyroid and thymus: come from the **third** pouch, the dorsal wing giving the inferior parathyroid and the ventral wing the thymus.
- D, the superior parathyroid and ultimobranchial body: come from the **fourth** pouch, the ultimobranchial body supplying the parafollicular C cells of the thyroid.

Final Answer: The auditory tube and the middle ear cavity $\Rightarrow$ C

Answer: (C) Go Back to Q10

Q11.

Solution

Concept – development of the secondary palate: The palate is completed in two stages, and the secondary palate is the larger, later part.

Step 1 – recall what comes first: In week 6 the intermaxillary segment, formed by fusion of the two medial nasal processes, gives the small primary palate in front of the incisive foramen.

Step 2 – find the shelves: In week 7 each maxillary process sends a palatine shelf medially. At this stage the shelves hang **vertically**, one on each side of the tongue, which fills the nasal cavity.

Step 3 – work out what allows elevation: The mandible grows, the head straightens and the tongue drops out of the way. The shelves then rotate from vertical to **horizontal** above the tongue, at about week 8.

Step 4 – follow the fusion: Once horizontal, the shelves meet in the midline and fuse with each other, with the primary palate in front and with the nasal septum above. Fusion runs **from front to back**, and the epithelium at the seam breaks down so that the mesenchyme becomes continuous.

Step 5 – close the timing: Fusion is complete by about week 12, so the whole event runs from **week 8 to week 12**. Failure at any point in this window leaves a cleft palate, and because fusion is front to back, the posterior clefts are the commonest.

Why the other options are wrong:

- B, weeks 4 to 5 with horizontal shelves fusing back to front: is wrong on all three counts. Week 4 is far too early, the shelves start vertical, and fusion runs front to back.
- C, week 3 by fusion of the mandibular processes: describes neither the timing nor the structures. The mandibular processes form the lower jaw and lower lip, not the palate.
- D, weeks 14 to 16 by fusion of the lateral nasal processes: is too late, and the lateral nasal processes form the alae of the nose, not the palate.

Final Answer: Between weeks 8 and 12, shelves elevating above the tongue and fusing front to back $\Rightarrow$ A

Answer: (A) Go Back to Q11

Q12.

Solution

Concept – classifying connective tissue proper: Name a connective tissue by two things, how much fibre it contains and how those fibres are arranged.

Step 1 – judge the fibre density: The section shows thick collagen bundles filling the field with almost no ground substance and few cells, so the tissue is **dense**, not loose.

Step 2 – judge the arrangement: All the bundles run parallel along one axis, so

the arrangement is **regular**, not irregular.

Step 3 – read the cells: The only cells are fibroblasts, flattened and squeezed into rows between the bundles. In a tendon they are called tenocytes, and their appearance follows from having no room between packed fibres.

Step 4 – link structure to function: A tendon transmits pull in one direction, so its collagen is laid down along the line of that pull. This gives great tensile strength along the axis and very little flexibility across it.

Step 5 – confirm with the site: Tendons, ligaments and aponeuroses are the classic examples of **dense regular connective tissue**, and the stem says the section is from a tendon.

Why the other options are wrong:

- A, loose areolar connective tissue: has sparse fibres running in every direction, abundant ground substance and many cell types. It fills the superficial fascia, not a tendon.
- B, dense irregular connective tissue: is equally fibre-rich, but its bundles interlace in **all** directions to resist pull from any side. It forms the dermis and organ capsules.
- C, elastic connective tissue: is dominated by branching elastic fibres, which stain black with orcein and recoil after stretch. It builds the ligamenta flava and the vocal ligament, not tendon.

Final Answer: Dense regular connective tissue $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q12

Q13.

Solution

Concept – the goblet cell as a unicellular gland: Most exocrine glands are multicellular, but one common cell works alone.

Step 1 – use the "unicellular gland" clue: The only unicellular exocrine gland in the body is the **goblet cell**.

Step 2 – use the shape clue: Its accumulated secretory granules distend the apex into a cup or goblet, while the base is drawn into a narrow stalk, the theca, holding the flattened nucleus, mitochondria and rough endoplasmic reticulum.

Step 3 – use the staining clue: The apical granules hold mucinogen, a glycoprotein. It washes out in routine processing and leaves the apex pale on H and E, but it stains strongly with **PAS** and with alcian blue.

Step 4 – use the site clue: Goblet cells sit scattered among the ciliated cells of the respiratory epithelium and among the enterocytes of the intestine, both of which the stem names.

Step 5 – state the function: On release, the mucinogen hydrates into mucus, which traps dust and bacteria in the airway and lubricates the passage of faeces in the gut.

Why the other options are wrong:

- B, the Paneth cell: sits at the **base** of the intestinal crypts, not scattered in the surface epithelium, and its granules are intensely eosinophilic. It secretes lysozyme and defensins, not mucus, and it is absent from the trachea.
- C, the plasma cell: is a connective tissue cell in the lamina propria, not part of the epithelium. It has a clock-face nucleus and secretes antibody.
- D, the serous acinar cell: is a **multicellular** gland unit, pyramidal, with basal basophilia and apical zymogen granules. It secretes watery enzyme-rich fluid, as in the parotid.

Final Answer: Goblet cell $\Rightarrow$ A

Answer: (A) Go Back to Q13

Q14.

Solution

Concept – the lingual artery: The artery of the tongue has a course defined entirely by one muscle, the hyoglossus.

Step 1 – use the origin clue: The lingual artery is the second branch of the external carotid, arising from its front opposite the tip of the **greater cornu of the hyoid**, at the level of the carotid triangle.

Step 2 – follow its first part: It first loops upwards and forwards, then turns down and forwards to reach the posterior border of hyoglossus. The loop is crossed by the hypoglossal nerve.

Step 3 – follow its second part: It then passes **deep (medial) to hyoglossus**, running forwards on the middle constrictor along the upper border of the hyoid.

Step 4 – follow its third part: At the anterior border of hyoglossus it turns upwards as the deep lingual artery and runs to the tip of the tongue, giving the dorsal lingual and sublingual branches on the way.

Step 5 – note why the plane matters: Everything else in the region, the lingual nerve, the submandibular duct and the hypoglossal nerve, lies **superficial** to hyo-

glossus. The artery is the one structure deep to it, which is why the muscle is the key landmark when ligating it.

Why the other options are wrong:

- A, the superior thyroid artery: is the **first** branch of the external carotid, arising just below the greater cornu, and it runs down to the thyroid gland.
- B, the maxillary artery: is a terminal branch given behind the neck of the mandible, and it runs into the infratemporal fossa, nowhere near hyoglossus.
- D, the ascending pharyngeal artery: arises from the **back** of the external carotid and ascends on the pharyngeal wall.

Final Answer: Lingual artery $\Rightarrow$ C

Answer: (C) Go Back to Q14

Answer Key

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