

NEET MDS General Anatomy

Sample Paper – 2

Duration: 11 Minutes

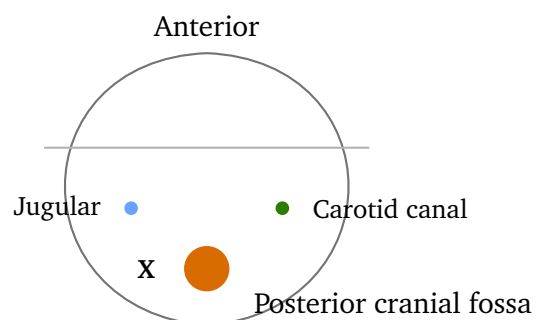
Maximum Marks: 56

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. In the schematic of the skull base seen from above, the large midline opening marked **X** in the floor of the posterior cranial fossa is the foramen magnum. The set of structures that passes through **X** is:

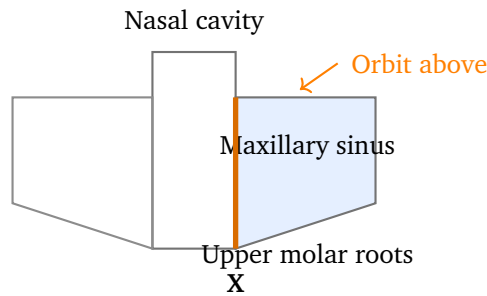


- (A) The internal carotid artery and the deep petrosal nerve
- (B) The internal jugular vein with the glossopharyngeal and vagus nerves



- (C) The facial nerve and the labyrinthine artery
- (D) The medulla oblongata, the two vertebral arteries and the spinal roots of the accessory nerve

Q2. The coronal schematic below shows the right maxillary sinus. The wall marked **X** separates the sinus from the nasal cavity and carries the ostium that drains the sinus into the middle meatus. Wall **X** is the:



- (A) Medial wall
- (B) Roof
- (C) Floor
- (D) Posterior wall

Q3. You are planning a palatal flap and need to know the bony base you are working over. The hard palate is formed by:

- (A) The palatine processes of the two maxillae in front and the horizontal plates of the two palatine bones behind
- (B) The palatine processes of the two maxillae in front and the medial pterygoid plates of the sphenoid behind
- (C) The horizontal plates of the two palatine bones and the vomer
- (D) The alveolar processes of the two maxillae and the perpendicular plates of the two palatine bones

Cranial Nerves

Q4. The trigeminal (semilunar) ganglion carries the cell bodies of the sensory fibres of the fifth cranial nerve and lies in Meckel's cave. Meckel's cave is:

- (A) An air cell within the mastoid part of the temporal bone
- (B) A dural pouch resting on the trigeminal impression near the apex of the petrous temporal bone, in the middle cranial fossa
- (C) A recess of the cavernous sinus lying medial to the internal carotid artery
- (D) A depression on the floor of the posterior cranial fossa, just behind the internal acoustic meatus

Q5. Temporalis, masseter, medial pterygoid and lateral pterygoid all take their motor supply from one source. That source is:

- (A) The facial nerve
- (B) The maxillary division of the trigeminal nerve
- (C) The mandibular division of the trigeminal nerve
- (D) The buccal branch of the facial nerve

Q6. A branch of the mandibular nerve arises by two roots that encircle the middle meningeal artery, passes behind the neck of the mandible, and delivers postganglionic parasympathetic fibres from the otic ganglion to the parotid gland. This branch is the:

- (A) Auriculotemporal nerve
- (B) Buccal nerve
- (C) Great auricular nerve
- (D) Nerve to mylohyoid

**Muscles, Temporomandibular
Joint and Triangles of the Neck**

Q7. A patient with long-standing bruxism has a hypertrophied, easily palpable muscle that arises from the lower border and deep surface of the zygomatic arch and powerfully elevates the mandible. This muscle inserts into the:

- (A) Pterygoid fovea on the neck of the condyle



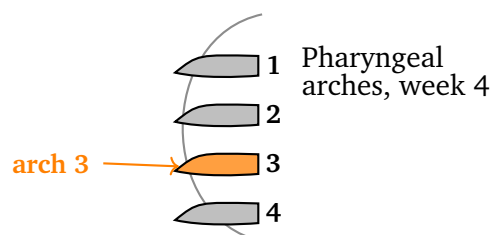
- (B) Lateral surface of the ramus and the angle of the mandible
- (C) Medial surface of the ramus and the angle of the mandible
- (D) Coronoid process and the anterior border of the ramus

Q8. The digastric (submandibular) triangle is bounded above by the lower border of the mandible and below by the anterior and posterior bellies of digastric, with mylohyoid and hyoglossus forming most of its floor. A structure you expect to find within this triangle is:

- (A) The accessory nerve, running from sternocleidomastoid to trapezius
- (B) The thyroid gland with the recurrent laryngeal nerve behind it
- (C) The third part of the subclavian artery
- (D) The submandibular salivary gland, with the facial artery grooving its deep surface

General Embryology and Pharyngeal Arches

Q9. In the schematic of the pharyngeal arches below, the arch marked **3** contributes one muscle and one skeletal element to the adult. That muscle and that skeletal element are:



- (A) Stapedius and the lesser cornu of the hyoid bone
- (B) Posterior belly of digastric and the styloid process
- (C) Stylopharyngeus and the greater cornu of the hyoid bone
- (D) Cricothyroid and the thyroid cartilage

Q10. The thyroid gland begins as an endodermal downgrowth at the foramen caecum of the tongue and descends in the midline of the neck along the thyroglossal duct. Regarding this duct:

- (A) It normally disappears, but may persist as the pyramidal lobe, or as a thyroglossal cyst that moves up on swallowing and on protrusion of the tongue
- (B) It persists throughout life and drains thyroid secretion into the pharynx
- (C) It runs lateral to the carotid sheath and ends in the pyriform fossa
- (D) It gives rise to the parathyroid glands and the thymus

Q11. The mucosa of the anterior two-thirds of the tongue develops from:

- (A) The hypobranchial eminence, a third and fourth arch structure
- (B) Two lateral lingual swellings and the tuberculum impar, all of first arch origin
- (C) The occipital myotomes that migrate into the floor of the mouth
- (D) The copula of the second arch, which overgrows the first arch contribution

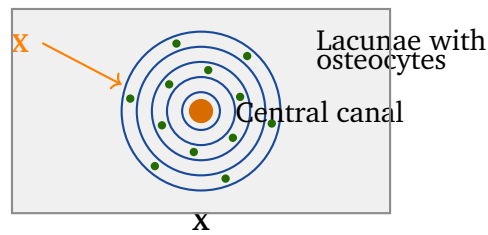
General Histology

Q12. A cartilage has a glassy, homogeneous matrix in which type II collagen fibrils are masked by the ground substance, and it is the type found in the costal cartilages, the tracheal rings and the articular surfaces of synovial joints. This cartilage is:

- (A) Elastic cartilage
- (B) White fibrocartilage
- (C) Hyaline cartilage
- (D) Fibro-elastic cartilage

Q13. The transverse section of compact bone below shows the unit marked X: a central canal carrying a blood vessel, ringed by concentric lamellae, with osteocytes lying in lacunae between the lamellae. Unit X is:





- (A) A Volkmann's canal
- (B) An interstitial lamella
- (C) A trabecula of spongy bone
- (D) A Haversian system, that is an osteon

Vascular and Lymphatic Supply of the Head and Neck

- Q14.** The inferior alveolar artery, which accompanies the inferior alveolar nerve and supplies the lower teeth, arises from:
- (A) The second, or pterygoid, part of the maxillary artery
 - (B) The first, or mandibular, part of the maxillary artery
 - (C) The third, or pterygopalatine, part of the maxillary artery
 - (D) The superficial temporal artery



Detailed Solutions**Q1.****Solution**

Concept – the contents of the foramen magnum: The foramen magnum is the largest opening in the skull base and it is where the cranial cavity becomes the vertebral canal.

Step 1 – place the foramen: It lies in the occipital bone, in the floor of the **posterior** cranial fossa, exactly as marked **X** in the diagram.

Step 2 – take the nervous content: The **medulla oblongata** passes through it and becomes continuous with the spinal cord at the level of the upper border of the atlas.

Step 3 – add the nerve that ascends: The **spinal root of the accessory nerve** is the one nerve that runs *upwards* through the foramen magnum, having formed from the C1 to C5 segments, before leaving again through the jugular foramen.

Step 4 – take the arterial content: The two **vertebral arteries** enter here, along with their anterior and posterior spinal branches.

Step 5 – add the rest for completeness: The membrana tectoria, the apical ligament of the dens, the alar ligaments and the sympathetic plexus around the vertebral arteries also pass through, but the three structures the examiner wants are medulla, vertebral arteries and spinal accessory.

Why the other options are wrong:

- A, the internal carotid artery and deep petrosal nerve: run through the **carotid canal** and the foramen lacerum region, marked separately in the diagram.
- B, the internal jugular vein with the glossopharyngeal and vagus nerves: pass through the **jugular foramen**, which is also marked separately.
- C, the facial nerve and labyrinthine artery: run through the **internal acoustic meatus** on the posterior surface of the petrous temporal bone.

Final Answer: Medulla oblongata, vertebral arteries and spinal roots of the accessory nerve ⇒

Answer: (D) [Go Back to Q1](#)



Q2.

Solution

Concept – the walls of the maxillary sinus: The maxillary antrum is a pyramid, and each of its walls faces a different structure that matters clinically.

Step 1 – read the first clue: Wall X separates the sinus from the **nasal cavity**. The only wall that faces the nose is the medial wall, which is the lateral wall of the nose itself.

Step 2 – read the second clue: The ostium of the sinus lies in the medial wall and opens into the **hiatus semilunaris of the middle meatus**, which confirms the same answer.

Step 3 – note why this position matters: The ostium sits high up on the medial wall, well above the floor of the sinus, so drainage has to work against gravity when a patient is upright. That is why the antrum is prone to retained infection.

Step 4 – fix the other walls for contrast: The roof is the floor of the orbit and carries the infraorbital nerve, the floor is the alveolar process holding the roots of the premolars and molars, and the posterior wall faces the infratemporal fossa.

Why the other options are wrong:

- B, the roof: is the floor of the orbit, shown at the top of the diagram, and it faces the eye, not the nose.
- C, the floor: is formed by the alveolar process of the maxilla and lies over the upper molar roots, labelled at the bottom of the diagram.
- D, the posterior wall: separates the sinus from the infratemporal and pterygopalatine fossae, not from the nasal cavity.

Final Answer: The medial wall $\Rightarrow$ A

Answer: (A) [Go Back to Q2](#)

Q3.

Solution

Concept – the bony hard palate: The hard palate is made of four bony pieces from two paired bones only.

Step 1 – take the front three-quarters: The **palatine process of each maxilla** forms the anterior part, and the two meet in the midline at the median palatine suture.

Step 2 – take the back quarter: The **horizontal plate of each palatine bone**



forms the posterior part, meeting its fellow in the midline.

Step 3 – name the joint between them: The maxillary and palatine contributions meet at the transverse palatine suture, which runs across the palate.

Step 4 – fix the landmarks: The incisive foramen sits anteriorly in the maxillary part and transmits the nasopalatine nerve; the greater and lesser palatine foramina sit in the palatine part and transmit the greater and lesser palatine nerves.

Why the other options are wrong:

- B, the medial pterygoid plates: lie **behind** the hard palate and give attachment to the superior constrictor; they take no part in forming it.
- C, the vomer: is a midline bone that forms the posteroinferior part of the nasal **septum**, standing on top of the palate rather than forming it.
- D, the alveolar processes and perpendicular plates: the alveolar process holds the teeth and bounds the palate, and the perpendicular plate of the palatine bone lies in the **lateral wall of the nose**.

Final Answer: Palatine processes of the maxillae plus horizontal plates of the palatine bones ⇒

Answer: (A) [Go Back to Q3](#)

Q4.

Solution

Concept – Meckel's cave and the trigeminal ganglion: The trigeminal ganglion is unusual because it sits inside a pouch of dura rather than free in the cranial cavity.

Step 1 – locate the ganglion: It lies in the **middle cranial fossa**, on the trigeminal impression on the anterior surface of the petrous temporal bone, close to the apex.

Step 2 – describe the pouch: The dura of the middle fossa splits to enclose it, and this dural recess is **Meckel's cave**, also called the trigeminal cave.

Step 3 – note what is inside the cave: The posterior part of the ganglion and its root are surrounded by a prolongation of the subarachnoid space and its cerebrospinal fluid, which is why a needle placed for a trigeminal block can enter CSF.

Step 4 – fix the relations: Medially lies the cavernous sinus with the internal carotid artery, and the three divisions V1, V2 and V3 leave the convex anterior border to reach the superior orbital fissure, foramen rotundum and foramen ovale respectively.



Why the other options are wrong:

- A, a mastoid air cell: is an air-filled space in the temporal bone continuous with the middle ear, and holds no ganglion.
- C, a recess of the cavernous sinus: the cave lies close to but is **separate from** the cavernous sinus; the cave is a dural pouch containing CSF, not venous blood.
- D, a depression in the posterior cranial fossa: is the wrong fossa; behind the internal acoustic meatus you would be near the sigmoid sulcus, not the trigeminal ganglion.

Final Answer: A dural pouch on the trigeminal impression of the petrous apex, in the middle cranial fossa ⇒ **B**

Answer: (B) [Go Back to Q4](#)

Q5.

Solution

Concept – one nerve for the muscles of mastication: The muscles of mastication all come from the first pharyngeal arch, so they all keep the nerve of that arch.

Step 1 – apply the arch rule: Arch 1 is supplied by the trigeminal nerve, and specifically by its **mandibular division (V3)**, which is the only mixed division carrying motor fibres.

Step 2 – name the actual branches: Deep temporal nerves supply temporalis, the masseteric nerve supplies masseter, and the nerves to the medial and lateral pterygoid supply those two muscles. All four arise from V3.

Step 3 – note the route of most of them: The masseteric and deep temporal nerves come off the **anterior division** of V3, which is otherwise the motor division.

Step 4 – extend the same logic: V3 also supplies the other first-arch muscles, that is mylohyoid, the anterior belly of digastric, tensor tympani and tensor veli palatini, which is a favourite follow-up in the exam.

Why the other options are wrong:

- A, the facial nerve: is the nerve of the **second** arch and supplies the muscles of facial expression, not the masticatory muscles.
- B, the maxillary division: is purely **sensory** and carries no motor fibres at all.
- D, the buccal branch of the facial nerve: supplies buccinator, a muscle of facial expression. Do not confuse it with the buccal nerve of V3, which is



only sensory to the cheek.

Final Answer: The mandibular division of the trigeminal nerve $\Rightarrow$ C

Answer: (C) [Go Back to Q5](#)

Q6.

Solution

Concept – the auriculotemporal nerve: This branch of V3 has an anatomy that no other branch shares, which makes it easy to identify from a description.

Step 1 – use the two-root clue: The auriculotemporal nerve arises from the **posterior division of V3 by two roots**, and those two roots **encircle the middle meningeal artery** before joining behind it. No other cranial nerve branch does this.

Step 2 – follow its course: The single trunk then runs backwards deep to the neck of the mandible, turns upwards behind the temporomandibular joint with the superficial temporal vessels, and crosses the root of the zygoma.

Step 3 – account for the parasympathetic fibres: Preganglionic fibres travel in the glossopharyngeal nerve, then its tympanic branch, then the lesser petrosal nerve to the **otic ganglion**. Postganglionic fibres leave the ganglion and hitch a ride on the auriculotemporal nerve to reach the **parotid gland**.

Step 4 – add its sensory territory: It is also sensory to the temporomandibular joint, the tragus, the upper auricle, the external acoustic meatus, the tympanic membrane and the temporal scalp.

Step 5 – link to a clinic: Misdirected regeneration of these fibres after parotid surgery produces Frey's syndrome, that is gustatory sweating over the auriculotemporal territory.

Why the other options are wrong:

- B, the buccal nerve: is a branch of the anterior division of V3 and is purely sensory to the cheek and buccal gingiva. It does not encircle the middle meningeal artery.
- C, the great auricular nerve: is a **cervical plexus** branch from C2 and C3, not a branch of the mandibular nerve at all.
- D, the nerve to mylohyoid: is a branch of the inferior alveolar nerve and is motor to mylohyoid and the anterior belly of digastric. It carries no parotid secretomotor fibres.

Final Answer: The auriculotemporal nerve $\Rightarrow$ A



Answer: (A) [Go Back to Q6](#)

Q7.

Solution

Concept – the masseter: The masseter is the most superficial muscle of mastication and the one you can feel when the patient clenches.

Step 1 – identify the muscle from the origin: The description gives an origin from the **lower border and deep surface of the zygomatic arch**. That is the masseter: its superficial head comes from the anterior two-thirds of the lower border, and its deep head from the posterior third and the deep surface.

Step 2 – work out the insertion: The fibres run downwards and backwards to insert into the **lateral surface of the ramus and the angle of the mandible**. The superficial head takes the angle and the lower ramus; the deep head takes the upper ramus and the coronoid process.

Step 3 – state the action: Because the fibres pull the ramus upwards towards the arch, the masseter is a powerful **elevator** of the mandible, and it is the strongest muscle for the final crushing bite.

Step 4 – link to the clinical picture: In bruxism the muscle hypertrophies and produces a visible square jaw, and the palpable bulge is exactly over the lateral surface of the ramus.

Step 5 – note the nerve: It is supplied by the masseteric nerve from the anterior division of V3, which reaches it through the mandibular notch.

Why the other options are wrong:

- A, the pterygoid fovea: is the insertion of the **lateral pterygoid**, on the front of the neck of the condyle.
- C, the medial surface of the ramus and angle: is the insertion of the **medial pterygoid**, which is the mirror image of masseter on the inner side and forms a sling with it.
- D, the coronoid process and anterior border of the ramus: is the insertion of the **temporalis**, whose fibres descend deep to the zygomatic arch rather than from it.

Final Answer: Lateral surface of the ramus and the angle of the mandible ⇒ **B**

Answer: (B) [Go Back to Q7](#)



Q8.

Solution

Concept – the contents of the digastric triangle: Once you have the boundaries, the contents follow from what lies between mandible and hyoid.

Step 1 – confirm the boundaries given: Above, the lower border of the mandible and a line to the mastoid process; in front, the anterior belly of digastric; behind, the posterior belly of digastric and stylohyoid.

Step 2 – name the main occupant: The **submandibular salivary gland** fills the triangle. It has a large superficial part and a small deep part that hooks around the free posterior border of mylohyoid.

Step 3 – relate the facial artery to it: The facial artery arches over the greater cornu of the hyoid, runs deep to the posterior belly of digastric, and **grooves the deep surface of the gland** before emerging at the lower border of the mandible.

Step 4 – list the other contents: The submandibular lymph nodes, the hypoglossal nerve, the lingual nerve with the submandibular ganglion, part of the facial vein, and, in the posterior part, the carotid sheath structures deep to the gland.

Step 5 – fix the floor: Mylohyoid and hyoglossus form most of the floor, with a small contribution from the middle constrictor.

Why the other options are wrong:

- A, the accessory nerve: crosses the **posterior** triangle of the neck, from the posterior border of sternocleidomastoid to trapezius, well behind this triangle.
- B, the thyroid gland and recurrent laryngeal nerve: lie in the **muscular** triangle, at the level of the larynx and trachea, below the hyoid.
- C, the third part of the subclavian artery: lies in the **supraclavicular** part of the posterior triangle, above the first rib.

Final Answer: The submandibular gland with the facial artery on its deep surface
⇒

Answer: (D) [Go Back to Q8](#)



Q9.

Solution

Concept – derivatives of the third pharyngeal arch: For every arch you must be able to name its nerve, its muscle and its cartilage.

Step 1 – take the nerve of arch 3: It is the **glossopharyngeal nerve (IX)**.

Step 2 – take the muscle: The only muscle of the third arch is **stylopharyngeus**, and true to the rule it is the only muscle the glossopharyngeal nerve supplies.

Step 3 – take the cartilage: The third arch cartilage forms the **greater cornu of the hyoid bone** and the lower part of the body of the hyoid.

Step 4 – add the pouch derivatives for completeness: The third pharyngeal pouch gives the inferior parathyroid gland from its dorsal wing and the thymus from its ventral wing, which is why the inferior parathyroid ends up below the superior one.

Step 5 – match to the options: Stylopharyngeus with the greater cornu of the hyoid is the only pairing that keeps both items inside arch 3.

Why the other options are wrong:

- A, stapedius and the lesser cornu: both belong to the **second** arch, from Reichert's cartilage.
- B, posterior belly of digastric and the styloid process: are again **second** arch derivatives supplied by the facial nerve.
- D, cricothyroid and the thyroid cartilage: are **fourth** arch derivatives supplied by the external laryngeal branch of the vagus.

Final Answer: Stylopharyngeus and the greater cornu of the hyoid bone ⇒ C

Answer: (C) [Go Back to Q9](#)

Q10.

Solution

Concept – the descent of the thyroid and the thyroglossal duct: The thyroid is the first endocrine gland to appear, and it starts far from where it ends up.

Step 1 – take the site of origin: It begins in the fourth week as an endodermal thickening in the floor of the pharynx, between the tuberculum impar and the copula. The adult remnant of that site is the **foramen caecum** of the tongue.

Step 2 – follow the descent: The diverticulum descends in front of the hyoid bone and the laryngeal cartilages, staying connected to the tongue by the narrow



thyroglossal duct.

Step 3 – state the normal fate of the duct: By about the tenth week the duct normally **breaks up and disappears**, and the gland reaches its final position in front of the second to fourth tracheal rings.

Step 4 – state what happens if it persists: A persistent lower end forms the **pyramidal lobe**, sometimes with the levator glandulae thyroideae. A persistent segment anywhere along the track forms a **thyroglossal cyst**, most often just below the hyoid in the midline.

Step 5 – explain the classic sign: Because the track is tethered to the hyoid and to the foramen caecum, the cyst **moves up on swallowing and on protruding the tongue**. That is why the Sistrunk operation must remove the body of the hyoid along with the cyst, or the lesion recurs.

Why the other options are wrong:

- B, a permanent duct draining secretion: is wrong on two counts. The duct normally vanishes, and the thyroid is a ductless endocrine gland that releases hormone into blood.
- C, lateral to the carotid sheath ending in the pyriform fossa: describes the track of the ultimobranchial body and of the rare pyriform sinus fistula, not the thyroglossal duct, which is strictly **midline**.
- D, giving rise to parathyroids and thymus: those come from the **third and fourth pharyngeal pouches**, not from the thyroglossal duct.

Final Answer: It normally disappears, but may persist as the pyramidal lobe or a thyroglossal cyst ⇒ A

Answer: (A) [Go Back to Q10](#)

Q11.

Solution

Concept – development of the tongue mucosa: The tongue is built from swellings in the floor of the pharynx, and the mucosa of each part remembers the arch it came from.

Step 1 – take the first arch swellings: The first arch produces a midline **tuberculum impar** and two **lateral lingual swellings**, one on each side of it.

Step 2 – watch the swellings grow: The two lateral lingual swellings enlarge rapidly, overgrow the tuberculum impar, and fuse with each other in the midline. Their line of fusion becomes the median sulcus, and internally the lingual septum.



Step 3 – name the product: The fused swellings form the mucosa of the **anterior two-thirds**, that is the part in front of the sulcus terminalis.

Step 4 – confirm with the nerve: Because this mucosa is first arch in origin, its general sensation is carried by the lingual nerve, a branch of the first arch nerve V3. The nerve supply always follows the arch of origin.

Step 5 – separate the posterior third: The posterior third comes mainly from the hypobranchial eminence of the third arch, which is why its sensation is glosso-pharyngeal.

Why the other options are wrong:

- A, the hypobranchial eminence: forms the **posterior third**, not the anterior two-thirds.
- C, the occipital myotomes: give the tongue **musculature** that migrates in with the hypoglossal nerve. They contribute muscle, not mucosa.
- D, the copula of the second arch: is overgrown by the third arch and makes **no lasting contribution** to the adult tongue mucosa.

Final Answer: Two lateral lingual swellings and the tuberculum impar ⇒ **B**

Answer: (B) [Go Back to Q11](#)

Q12.

Solution

Concept – naming a cartilage from its matrix: The three types of cartilage are told apart by what fibre dominates the matrix and whether you can see it.

Step 1 – read the matrix description: The matrix is **glassy and homogeneous**. The word hyaline literally means glassy, so the description names the answer.

Step 2 – read the fibre clue: The collagen is **type II** and is **masked** by the ground substance because both have almost the same refractive index. That masking is exactly why hyaline cartilage looks featureless under the microscope.

Step 3 – read the sites: Costal cartilages, tracheal and bronchial rings, the nasal septum, and the articular surfaces of synovial joints are all classic hyaline sites.

Step 4 – add the structural detail: Chondrocytes sit in lacunae, often in isogenous groups of two to four, and the whole is wrapped in a perichondrium, except over articular surfaces where there is none, which is why articular cartilage heals so poorly.

Step 5 – note one more role: The epiphyseal growth plate and the cartilage



model of endochondral ossification are both hyaline, so it is also the template for most of the skeleton.

Why the other options are wrong:

- A, elastic cartilage: has a matrix packed with **visible elastic fibres** that stain black with orcein, and is found in the auricle, the epiglottis and the eustachian tube.
- B, white fibrocartilage: has thick, clearly visible bundles of **type I** collagen, and is found in the intervertebral discs, the pubic symphysis and the temporomandibular joint disc.
- D, fibro-elastic cartilage: is not a standard histological type in this classification, and in any case the description gives neither visible collagen bundles nor elastic fibres.

Final Answer: Hyaline cartilage $\Rightarrow$

Answer: (C) [Go Back to Q12](#)

Q13.

Solution

Concept – the structural unit of compact bone: Compact bone is built from repeating cylinders, and the diagram shows one of them cut across.

Step 1 – read the central structure: The centre is a **Haversian canal**, running along the long axis of the bone and carrying a capillary, sometimes a venule, and a nerve fibre.

Step 2 – read the rings: Around it lie four to twenty **concentric lamellae** of mineralised matrix, the collagen of each running in a different direction from its neighbour, which gives the bone its strength.

Step 3 – read the dots: Between the lamellae are **lacunae**, each holding one osteocyte, and they communicate with each other and with the canal through canaliculi. This is how the osteocytes get nutrients, since matrix is impermeable.

Step 4 – name the whole unit: Canal plus lamellae plus osteocytes is the **Haversian system**, also called the osteon, and it is bounded from its neighbours by a cement line.

Step 5 – add the connection: Volkmann's canals run transversely and connect one Haversian canal to another and to the periosteal and medullary surfaces. They are not surrounded by concentric lamellae, which is the key point of difference.



Why the other options are wrong:

- A, a Volkmann's canal: runs **transversely or obliquely** and has **no concentric lamellae** around it, so it cannot be the ringed unit shown.
- B, an interstitial lamella: is the leftover fragment of an **old, partly resorbed** osteon that fills the angles between intact osteons. It has no central canal.
- C, a trabecula of spongy bone: is a thin plate or bar of **cancellous** bone with no central vessel; it is nourished from the marrow it faces, so it needs no Haversian canal.

Final Answer: A Haversian system, that is an osteon $\Rightarrow$ D

Answer: (D) [Go Back to Q13](#)

Q14.

Solution

Concept – the three parts of the maxillary artery: The maxillary artery is divided by the lateral pterygoid muscle into three parts, and each part has a predictable set of branches.

Step 1 – fix the division: The first part lies **behind** the lateral pterygoid, deep to the neck of the mandible, and is called the mandibular part. The second lies **on** the muscle and is the pterygoid part. The third lies **beyond** it in the pterygopalatine fossa.

Step 2 – take the branches of the first part: There are five, and all five enter bone or the cranium: deep auricular, anterior tympanic, middle meningeal, accessory meningeal and the **inferior alveolar**.

Step 3 – follow the inferior alveolar artery: It descends with the inferior alveolar nerve and enters the mandibular canal with it, supplying the lower teeth and then ending as the mental artery.

Step 4 – note its one branch before entry: It gives the mylohyoid branch before it enters bone, which runs with the nerve to mylohyoid in the mylohyoid groove.

Step 5 – conclude: Since the inferior alveolar artery is a branch of the first part, the mandibular part is the answer.

Why the other options are wrong:

- A, the second or pterygoid part: gives only **muscular** branches, that is the deep temporal, pterygoid, masseteric and buccal arteries. None of them reaches a tooth.
- C, the third or pterygopalatine part: gives the posterior superior alveolar,



infraorbital, greater palatine, sphenopalatine, pharyngeal and artery of the pterygoid canal. These supply the **upper** teeth and the nose, not the lower teeth.

- D, the superficial temporal artery: is the other terminal branch of the external carotid and supplies the scalp and the temporal region, well away from the mandibular canal.

Final Answer: The first, or mandibular, part of the maxillary artery ⇒ B

Answer: (B) [Go Back to Q14](#)



Answer Key

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

