

INI CET Anatomy

Sample Paper – 8

Duration: 45 Minutes

Maximum Marks: 50

Instructions

- This paper contains **50** Multiple Choice Questions (Single Best Response), modelled on the Anatomy content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- INI CET is a computer-based test taken in fixed 50-question blocks of **45 minutes** each; attempt this practice paper in one timed sitting of about **45 minutes**.
- Use of textbooks, mobile phones, and other electronic gadgets is strictly prohibited during the attempt.

Neuroanatomy

- Q1.** A lower motor neuron (nuclear or peripheral) lesion of the facial nerve differs from an upper motor neuron lesion in that the lower motor neuron lesion:
- (A) Spares the muscles of the lower face
 - (B) Weakens only the contralateral forehead
 - (C) Spares the forehead, so wrinkling is preserved
 - (D) Paralyzes the whole half of the face, including the forehead
- Q2.** Besides its large sensory territory, the trigeminal nerve provides motor supply to which group of muscles?

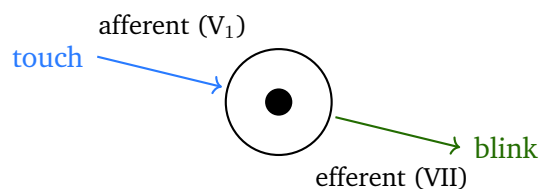


- (A) Muscles of facial expression
- (B) Muscles of mastication
- (C) Extraocular muscles
- (D) Intrinsic muscles of the tongue

Q3. Trigeminal neuralgia characteristically presents as:

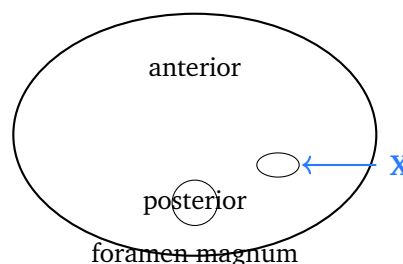
- (A) A constant dull ache spread over the whole scalp
- (B) Brief paroxysms of severe stabbing pain in a division of CN V, triggered by light touch
- (C) Progressive weakness of the muscles of one half of the face
- (D) Loss of taste over the anterior two-thirds of the tongue

Q4. In the corneal (blink) reflex shown, lightly touching the cornea makes both eyes blink. The afferent and efferent limbs of this reflex are carried respectively by:



- (A) The ophthalmic nerve (V_1) as afferent and the facial nerve as efferent
- (B) The facial nerve as afferent and the trigeminal nerve as efferent
- (C) The optic nerve as afferent and the oculomotor nerve as efferent
- (D) The maxillary nerve (V_2) as afferent and the facial nerve as efferent

Q5. In the schematic of the skull base below, the foramen marked **X** transmits which set of cranial nerves?



- (A) Glossopharyngeal (IX), vagus (X) and accessory (XI)
- (B) Facial (VII) and vestibulocochlear (VIII)
- (C) Oculomotor (III), trochlear (IV) and abducens (VI)
- (D) Trigeminal (V) and facial (VII)

Q6. The only muscle supplied by the glossopharyngeal nerve (CN IX) is:

- (A) Palatoglossus
- (B) Tensor veli palatini
- (C) Cricothyroid
- (D) Stylopharyngeus

Q7. The spinal part of the accessory nerve (CN XI) supplies which two muscles?

- (A) Trapezius and deltoid
- (B) Sternocleidomastoid and trapezius
- (C) Sternocleidomastoid and platysma
- (D) Trapezius and levator scapulae

Q8. In a unilateral lesion of the vagus nerve, on asking the patient to say “aah” the uvula will:

- (A) Deviate toward the side of the lesion
- (B) Deviate away from the side of the lesion
- (C) Remain exactly central
- (D) Elevate symmetrically on both sides

Q9. The classic clinical triad of Horner syndrome consists of:

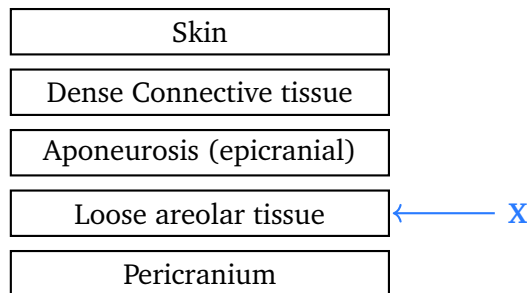
- (A) Ptosis, mydriasis and facial flushing
- (B) Exophthalmos, miosis and increased sweating
- (C) Mydriasis, ptosis and anhidrosis



(D) Ptosis, miosis and anhidrosis

Head and Neck

Q10. In the diagram of the layers of the scalp, the layer marked X, the “danger area” through which pus can track to the intracranial venous sinuses via emissary veins, is the:



(A) Loose areolar connective tissue

(B) Skin

(C) Pericranium

(D) Epicranial aponeurosis

Q11. Emissary veins are clinically important mainly because they:

(A) Drain the orbit into the facial vein only

(B) Carry oxygenated arterial blood to the scalp

(C) Provide the sole venous drainage of the brain

(D) Connect scalp veins to the intracranial dural venous sinuses, allowing spread of infection

Q12. Which set correctly names the five terminal branches of the facial nerve within and beyond the parotid gland?

(A) Temporal, zygomatic, buccal, marginal mandibular, cervical

(B) Frontal, nasal, labial, mental, cervical

(C) Ophthalmic, maxillary, mandibular, buccal, cervical

(D) Temporal, orbital, nasal, oral, mandibular



- Q13.** The facial artery pulse is most easily felt where the artery crosses the:
- (A) Zygomatic arch
 - (B) Lower border of the mandible at the anterior border of masseter
 - (C) Angle of the mandible posteriorly
 - (D) Midpoint of the clavicle
- Q14.** Infection in the “danger area of the face” can reach the cavernous sinus because the facial vein communicates with it through the:
- (A) Retromandibular vein only
 - (B) Pterygoid venous plexus alone
 - (C) Superior and inferior ophthalmic veins
 - (D) Internal jugular vein directly
- Q15.** The buccinator, which keeps the food bolus between the teeth during chewing, receives its motor supply from the:
- (A) Mandibular nerve (V_3)
 - (B) Long buccal branch of V_3
 - (C) Facial nerve (CN VII)
 - (D) Glossopharyngeal nerve
- Q16.** The frontal and occipital bellies of occipitofrontalis are joined across the vault of the skull by the:
- (A) Temporoparietal fascia
 - (B) Epicranial aponeurosis (galea aponeurotica)
 - (C) Pericranium
 - (D) Deep temporal fascia

Upper and Lower Limb



Q17. The diagram lists the contents of the adductor (subsartorial / Hunter's) canal. Besides the femoral artery and femoral vein, the canal transmits which nerve(s), shown at **X**?

Femoral artery	Femoral vein	X
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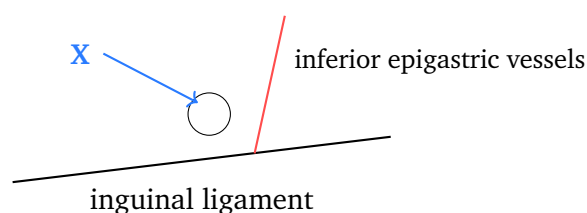
- (A) Saphenous nerve and nerve to vastus medialis
 - (B) The whole femoral nerve trunk
 - (C) The obturator nerve
 - (D) The sciatic nerve
- Q18.** The obturator nerve supplies the adductor muscles of the thigh and carries cutaneous sensation from the:
- (A) Medial aspect of the thigh
 - (B) Lateral aspect of the thigh
 - (C) Anterior aspect of the leg
 - (D) Sole of the foot
- Q19.** Which of the following muscles is **NOT** one of the four heads of the quadriceps femoris?
- (A) Rectus femoris
 - (B) Biceps femoris
 - (C) Vastus medialis
 - (D) Vastus intermedius
- Q20.** The femoral artery becomes the popliteal artery as it passes through the:
- (A) Apex of the femoral triangle
 - (B) Obturator foramen
 - (C) Greater sciatic foramen
 - (D) Adductor hiatus in adductor magnus



- Q21.** The great saphenous vein is a reliable landmark for venous cut-down because it consistently lies:
- (A) Posterior to the lateral malleolus
 - (B) Directly behind the medial malleolus
 - (C) Anterior to the medial malleolus
 - (D) Over the dorsum of the great toe only
- Q22.** The longest muscle in the body, running from the anterior superior iliac spine to the medial surface of the upper tibia, is the:
- (A) Gracilis
 - (B) Rectus femoris
 - (C) Sartorius
 - (D) Semitendinosus
- Q23.** The femoral nerve is derived from which spinal segments?
- (A) L2, L3 and L4
 - (B) L4, L5, S1 to S3
 - (C) L1 and L2
 - (D) S1 to S3

Thorax, Abdomen and Pelvis

- Q24.** In the diagram of the posterior surface of the anterior abdominal wall, the deep inguinal ring (marked X) lies immediately lateral to which vessels?



- (A) The inferior epigastric vessels



- (B) The femoral vessels
- (C) The external iliac vein only
- (D) The superficial epigastric vessels

Q25. Which of the following is present in the spermatic cord but is **NOT** one of its three arteries?

- (A) Testicular artery
- (B) Cremasteric artery
- (C) Pampiniform venous plexus
- (D) Artery to the ductus deferens

Q26. The fibromuscular band that guides descent of the testis from the posterior abdominal wall to the scrotum is the:

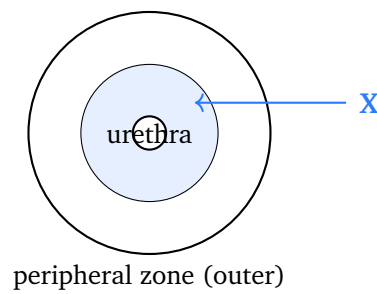
- (A) Processus vaginalis
- (B) Cremaster muscle
- (C) Round ligament
- (D) Gubernaculum

Q27. As it runs along the lateral pelvic wall toward the bladder base, the ductus (vas) deferens crosses superior to which structure?

- (A) The internal iliac artery
- (B) The obturator nerve
- (C) The inferior epigastric artery
- (D) The ureter

Q28. The diagram shows a transverse section of the prostate around the urethra. Benign prostatic hyperplasia arises predominantly in the zone marked X, the:





- (A) Peripheral zone
- (B) Central zone
- (C) Transitional zone
- (D) Anterior fibromuscular stroma

Q29. The prostatic venous plexus communicates with the internal vertebral venous plexus, which explains why prostatic carcinoma commonly metastasises early to the:

- (A) Lungs
- (B) Vertebral column (spine)
- (C) Brain
- (D) Liver

Q30. The cremaster muscle, which elevates the testis, is supplied by the genital branch of which nerve?

- (A) Ilioinguinal nerve
- (B) Iliohypogastric nerve
- (C) Pudendal nerve
- (D) Genitofemoral nerve

Embryology

Q31. Fertilization of the oocyte normally takes place in the:

- (A) Uterine cavity
- (B) Mature ovarian follicle



- (C) Ampulla of the uterine tube
- (D) Cervical canal

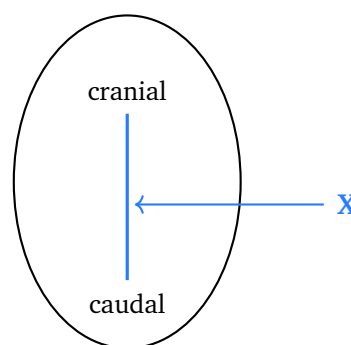
Q32. The blastocyst normally implants into the uterine endometrium at approximately:

- (A) Day 6 to 7 after fertilization
- (B) Day 1 to 2 after fertilization
- (C) Day 14 after fertilization
- (D) Day 21 after fertilization

Q33. During the second week of development the bilaminar embryonic disc is composed of the:

- (A) Ectoderm and endoderm formed only after gastrulation
- (B) Trophoblast and cytotrophoblast
- (C) Epiblast and hypoblast
- (D) Walls of the amnion and yolk sac

Q34. In the diagram of the third-week embryonic disc, the three definitive germ layers are established as cells ingress through the structure labelled X, the:



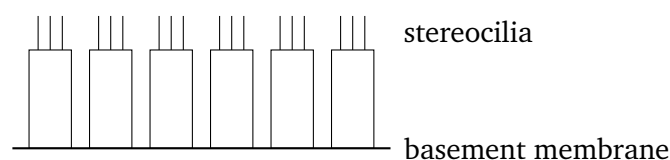
- (A) Neural tube
- (B) Notochordal plate alone
- (C) Primitive streak
- (D) Cloacal membrane



- Q35.** In the adult, the only persisting remnant of the notochord is the:
- (A) Nucleus pulposus of the intervertebral disc
 - (B) Ligamentum flavum
 - (C) Anterior longitudinal ligament
 - (D) Denticulate ligament
- Q36.** The most common site of an ectopic (tubal) pregnancy is the:
- (A) Ovary
 - (B) Abdominal cavity
 - (C) Ampulla of the uterine tube
 - (D) Cervix
- Q37.** Human chorionic gonadotropin (hCG), detected by pregnancy tests, is secreted mainly by the:
- (A) Hypoblast
 - (B) Cytotrophoblast
 - (C) Corpus luteum
 - (D) Syncytiotrophoblast

Histology

- Q38.** The schematic shows tall cells bearing long, non-motile apical tufts, with nuclei at different heights on a single basement membrane. This epithelium, lining the duct of the epididymis, is:



- (A) Simple squamous epithelium
- (B) Pseudostratified columnar epithelium with stereocilia
- (C) Transitional epithelium



(D) Stratified squamous epithelium

Q39. The fine supporting meshwork of the spleen and lymph nodes, blackened by silver stains, is built mainly of:

- (A) Type III collagen (reticular fibres)
- (B) Type I collagen
- (C) Elastin
- (D) Type II collagen

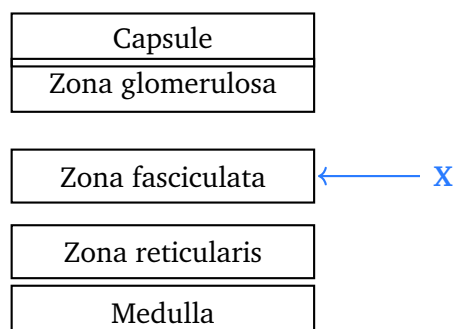
Q40. The basophilic Nissl bodies of the neuronal cytoplasm correspond ultra-structurally to:

- (A) Clusters of mitochondria
- (B) Rough endoplasmic reticulum studded with ribosomes
- (C) The Golgi apparatus
- (D) Membrane-bound lysosomes

Q41. The perisinusoidal space of Disse in the liver lies between the:

- (A) Hepatocytes and the sinusoidal endothelium
- (B) Two adjacent hepatocytes
- (C) Bile canaliculus and the hepatocyte
- (D) Portal vein and the hepatic artery

Q42. The diagram shows the layers of the adrenal gland. The wide middle cortical zone marked X, which secretes glucocorticoids (cortisol), is the:



- (A) Zona glomerulosa
- (B) Zona reticularis
- (C) Adrenal medulla
- (D) Zona fasciculata

Q43. The beta cells, forming the bulk of the core of the pancreatic islets of Langerhans, secrete:

- (A) Glucagon
- (B) Somatostatin
- (C) Insulin
- (D) Pancreatic polypeptide

Genetics and Cytogenetics

Q44. Myotonic dystrophy is an autosomal dominant disorder caused by an expanding CTG repeat; its tendency to appear earlier and more severely in successive generations is called:

- (A) Pleiotropy
- (B) Anticipation
- (C) Mosaicism
- (D) Genomic imprinting

Q45. Gaucher disease, the most common lysosomal storage disorder, is due to deficiency of the enzyme:

- (A) Hexosaminidase A
- (B) Glucocerebrosidase
- (C) Sphingomyelinase
- (D) Alpha-galactosidase A

Q46. In the ABO blood group system, the fact that a person of blood group AB expresses both A and B antigens fully is an example of:



- (A) Codominance
- (B) Complete dominance
- (C) Incomplete dominance
- (D) X-linked inheritance

Q47. How many Barr bodies would be seen in a somatic cell of a person with a 47,XXY (Klinefelter) karyotype?

- (A) Three
- (B) Two
- (C) Zero
- (D) One

Osteology and Radiological Anatomy

Q48. A “boxer’s fracture”, sustained when a clenched fist strikes a hard surface, is a fracture of the:

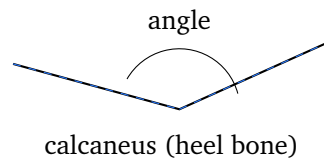
- (A) Scaphoid
- (B) Neck of the fifth metacarpal
- (C) Distal radius
- (D) Base of the first metacarpal

Q49. Bilateral inferior rib notching on a chest radiograph, from dilated collateral intercostal arteries, is a classic sign of:

- (A) Pulmonary embolism
- (B) Tetralogy of Fallot
- (C) Coarctation of the aorta
- (D) Atrial septal defect

Q50. In the lateral foot radiograph shown, Bohler’s angle is flattened (reduced below 20 degrees). This indicates a fracture of the:





- (A) Talus
- (B) Navicular
- (C) Cuboid
- (D) Calcaneus



Detailed Solutions

Q1.

Solution

Concept – facial nerve motor supply: The upper face receives motor input from both cerebral hemispheres, the lower face only from the opposite hemisphere.

Step 1 – effect of a lower motor neuron lesion: Damage to the facial nucleus or nerve removes all input to that side, so the **whole half of the face, forehead included**, is paralysed.

Step 2 – contrast with an upper motor neuron lesion: An UMN lesion spares the forehead because of its bilateral cortical supply.

Why the other options are wrong:

- A and C: sparing of the lower face or forehead describes an UMN lesion, not LMN.
- B: an LMN lesion affects the ipsilateral, not contralateral, side.

Final Answer: Whole half of face including forehead ⇒ **D**

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

Q2.

Solution

Concept – trigeminal nerve: CN V is chiefly sensory but has a motor root.

Step 1 – name the motor territory: Its motor fibres, travelling with V₃, supply the **muscles of mastication**.

Step 2 – add the minor muscles: It also supplies tensor tympani, tensor veli palatini, mylohyoid and the anterior belly of digastric.

Why the other options are wrong:

- A: facial expression muscles are supplied by CN VII.
- C: extraocular muscles by CN III, IV, VI.
- D: tongue muscles by CN XII.

Final Answer: Muscles of mastication ⇒ **B**

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



Q3.

Solution

Concept – trigeminal neuralgia: It is a paroxysmal pain disorder of CN V.

Step 1 – describe the pain: Sudden, **brief, severe, electric-shock-like (lancinating) pain** confined to one or more trigeminal divisions.

Step 2 – note the trigger: Light touch to a trigger zone, chewing or a cold breeze can set it off.

Why the other options are wrong:

- A: a constant diffuse ache is not the paroxysmal pattern.
- C: facial weakness points to a motor (facial nerve) problem.
- D: taste loss involves the facial nerve, not trigeminal pain.

Final Answer: Brief stabbing pain triggered by touch ⇒ **B**

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

Q4.

Solution

Concept – corneal reflex arc: Touching the cornea triggers a protective bilateral blink.

Step 1 – name the afferent limb: Corneal sensation travels in the **ophthalmic division of the trigeminal nerve (V₁)**, via the nasociliary nerve.

Step 2 – name the efferent limb: The **facial nerve (VII)** drives orbicularis oculi to close both eyes (the consensual response).

Why the other options are wrong:

- B: this reverses the two limbs.
- C: the optic and oculomotor nerves serve the pupillary light reflex, not the corneal reflex.
- D: corneal sensation is carried by V₁, not the maxillary V₂.

Final Answer: V₁ afferent, facial efferent ⇒ **A**

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



Q5.

Solution

Concept – jugular foramen: It lies between the temporal and occipital bones at the skull base.

Step 1 – list its cranial nerves: The **glossopharyngeal (IX)**, **vagus (X)** and **accessory (XI)** nerves pass through, with the internal jugular vein.

Step 2 – clinical link: A lesion here gives the jugular foramen (Vernet) syndrome.

Why the other options are wrong:

- B: VII and VIII use the internal acoustic meatus.
- C: III, IV, VI use the superior orbital fissure.
- D: V and VII do not share the jugular foramen.

Final Answer: IX, X and XI $\Rightarrow$ **A**

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

Q6.

Solution

Concept – glossopharyngeal motor supply: CN IX is largely sensory and secretomotor, with a single skeletal muscle.

Step 1 – name the muscle: It supplies **stylopharyngeus**, which elevates the pharynx.

Step 2 – eliminate the rest: Palatoglossus and most palatal muscles are vagal; tensor veli palatini is from V₃.

Why the other options are wrong:

- A: palatoglossus is supplied by CN X.
- B: tensor veli palatini by V₃.
- C: cricothyroid by the external laryngeal branch of CN X.

Final Answer: Stylopharyngeus $\Rightarrow$ **D**

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



Q7.

Solution

Concept – spinal accessory nerve: It is a purely motor nerve to two large muscles.

Step 1 – name them: The **sternocleidomastoid and trapezius**.

Step 2 – recall the signs: Injury (e.g. in posterior triangle surgery) causes a drooping shoulder and weak head turning.

Why the other options are wrong:

- A and D: deltoid and levator scapulae are not supplied by CN XI.
- C: platysma is a facial-nerve muscle.

Final Answer: Sternocleidomastoid and trapezius ⇒ **B**

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

Q8.

Solution

Concept – vagus and the soft palate: CN X supplies levator veli palatini, which lifts each half of the soft palate.

Step 1 – effect of a unilateral lesion: The paralysed side cannot rise, so the intact side pulls the uvula **away from the lesion**.

Step 2 – compare with the tongue rule: Unlike the tongue (deviates toward the lesion), the uvula deviates away.

Why the other options are wrong:

- A: toward the lesion is the tongue rule, not the uvula.
- C and D: a unilateral lesion causes asymmetry, not a central or symmetric uvula.

Final Answer: Deviates away from the lesion ⇒ **B**

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



Q9.

Solution

Concept – Horner syndrome: It follows interruption of the sympathetic supply to the head.

Step 1 – list the triad: **Ptosis** (weak superior tarsal muscle), **miosis** (unopposed constrictor) and **anhidrosis** (loss of sweating).

Step 2 – add the extras: Apparent enophthalmos and facial flushing may accompany it.

Why the other options are wrong:

- A and C: mydriasis is the opposite of the miosis seen in Horner.
- B: exophthalmos and increased sweating are not features.

Final Answer: Ptosis, miosis and anhidrosis ⇒ D

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

Q10.

Solution

Concept – layers of the scalp (SCALP): Skin, dense Connective tissue, Aponeurosis, Loose areolar tissue, Pericranium.

Step 1 – identify X: The fourth layer, **loose areolar connective tissue**, is the “danger area”.

Step 2 – explain the danger: Emissary veins here carry infection into the intracranial venous sinuses.

Why the other options are wrong:

- B and D: skin and aponeurosis are more superficial layers.
- C: pericranium is the deepest layer, adherent to bone.

Final Answer: Loose areolar connective tissue ⇒ A

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



Q11.

Solution

Concept – emissary veins: They are valveless channels crossing the skull.

Step 1 – state their connection: They link the **extracranial scalp veins with the intracranial dural venous sinuses**.

Step 2 – clinical relevance: Being valveless, they allow scalp infection to reach the sinuses and cause thrombosis.

Why the other options are wrong:

- A: they do far more than drain the orbit.
- B: they carry venous, not arterial, blood.
- C: the brain has its own venous drainage; emissary veins are supplementary.

Final Answer: Connect scalp veins to dural sinuses $\Rightarrow$ **D**

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

Q12.

Solution

Concept – terminal branches of the facial nerve: They radiate from the parotid gland.

Step 1 – list them (“Ten Zebras Bit My Cheek”): Temporal, Zygomatic, Buccal, Marginal mandibular, Cervical.

Step 2 – confirm: Only option A matches this set exactly.

Why the other options are wrong:

- B and D: invented names not used for the facial branches.
- C: lists trigeminal divisions, not facial branches.

Final Answer: Temporal, zygomatic, buccal, marginal mandibular, cervical $\Rightarrow$ **A**

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



Q13.

Solution

Concept – surface anatomy of the facial artery: It hooks around the mandible to enter the face.

Step 1 – name the site: The pulse is felt at the **lower border of the mandible, just anterior to masseter.**

Step 2 – reasoning: Here the artery is superficial and lies against bone.

Why the other options are wrong:

- A: the zygomatic arch overlies the transverse facial artery, not the facial pulse point.
- C and D: the angle of the mandible and the clavicle are not facial artery pulse sites.

Final Answer: Lower border of mandible, anterior to masseter ⇒ **B**

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

Q14.

Solution

Concept – danger area of the face: The facial vein is valveless and communicates intracranially.

Step 1 – name the route: Via the **superior and inferior ophthalmic veins** the facial vein connects to the cavernous sinus.

Step 2 – clinical danger: Squeezing a boil over the upper lip or nose can seed cavernous sinus thrombosis.

Why the other options are wrong:

- A and B: the retromandibular vein and pterygoid plexus are secondary routes, not the classic one.
- D: the internal jugular vein is a downstream, not the direct intracranial, connection.

Final Answer: Superior and inferior ophthalmic veins ⇒ **C**

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



Q15.

Solution

Concept – buccinator innervation: Although it acts in chewing, it is a muscle of facial expression.

Step 1 – name the nerve: Its motor supply is the buccal branch of the **facial nerve (CN VII)**.

Step 2 – avoid the trap: The buccal branch of V_3 that also runs here is purely sensory to the cheek.

Why the other options are wrong:

- A and B: V_3 and its long buccal branch are sensory to the cheek, not motor to buccinator.
- D: glossopharyngeal supplies stylopharyngeus, not buccinator.

Final Answer: Facial nerve (CN VII) $\Rightarrow$

Answer: (C) [Go Back to Q15](#)

Q16.

Solution

Concept – occipitofrontalis: It is a digastric muscle of the scalp.

Step 1 – name the connection: The frontal and occipital bellies are joined by the **epicranial aponeurosis (galea aponeurotica)**.

Step 2 – functional note: Together they wrinkle the forehead and move the scalp.

Why the other options are wrong:

- A, C, D: temporoparietal fascia, pericranium and deep temporal fascia do not connect the two bellies.

Final Answer: Epicranial aponeurosis $\Rightarrow$

Answer: (B) [Go Back to Q16](#)



Q17.

Solution

Concept – adductor (Hunter’s) canal: It is an intermuscular tunnel in the middle third of the thigh.

Step 1 – list its nerves: Besides the femoral vessels, it carries the **saphenous nerve and the nerve to vastus medialis**.

Step 2 – note the outcome: The femoral artery leaves the canal through the adductor hiatus to become popliteal.

Why the other options are wrong:

- B: the femoral nerve trunk ends higher, in the femoral triangle.
- C and D: the obturator and sciatic nerves lie in different compartments.

Final Answer: Saphenous nerve and nerve to vastus medialis ⇒ A

Answer: (A) [Go Back to Q17](#)

Q18.

Solution

Concept – obturator nerve: It is the nerve of the medial (adductor) compartment.

Step 1 – state its sensory field: It carries cutaneous sensation from the **medial aspect of the thigh**.

Step 2 – link to referred pain: This explains hip pathology referring pain to the medial thigh and knee.

Why the other options are wrong:

- B: the lateral thigh is the lateral cutaneous nerve of the thigh.
- C: the anterior leg is the deep/superficial fibular territory.
- D: the sole is supplied by the tibial nerve.

Final Answer: Medial aspect of the thigh ⇒ A

Answer: (A) [Go Back to Q18](#)



Q19.

Solution

Concept – quadriceps femoris: It has four heads acting on the knee.

Step 1 – list the four: Rectus femoris, vastus lateralis, vastus medialis and vastus intermedius.

Step 2 – identify the odd one out: Biceps femoris is a hamstring, not a quadriceps head.

Why the other options are wrong:

- A, C, D: rectus femoris, vastus medialis and vastus intermedius are all genuine heads.

Final Answer: Biceps femoris is not a quadriceps head ⇒ **B**

Answer: (B) [Go Back to Q19](#)

Q20.

Solution

Concept – continuation of the femoral artery: The artery changes name as it enters the popliteal fossa.

Step 1 – name the passage: It passes through the **adductor hiatus** in adductor magnus.

Step 2 – result: Beyond the hiatus it is called the popliteal artery.

Why the other options are wrong:

- A: at the femoral triangle apex it is still the femoral artery.
- B and C: the obturator foramen and greater sciatic foramen transmit other structures.

Final Answer: Adductor hiatus ⇒ **D**

Answer: (D) [Go Back to Q20](#)



Q21.

Solution

Concept – great saphenous vein landmark: It has a constant relation to the medial malleolus.

Step 1 – state the position: It lies **anterior to the medial malleolus**, where it can be reliably cannulated.

Step 2 – clinical use: This is the classic saphenous cut-down site in shock.

Why the other options are wrong:

- A: the small saphenous vein is behind the lateral malleolus.
- B: behind the medial malleolus lies the posterior tibial neurovascular bundle.
- D: the dorsal venous arch, not the malleolar landmark.

Final Answer: Anterior to the medial malleolus ⇒

Answer: (C) [Go Back to Q21](#)

Q22.

Solution

Concept – sartorius: A strap muscle crossing two joints.

Step 1 – identify it: Running from the ASIS to the medial tibia (pes anserinus), the **sartorius** is the longest muscle in the body.

Step 2 – action: It flexes, abducts and laterally rotates the thigh and flexes the knee.

Why the other options are wrong:

- A, B, D: gracilis, rectus femoris and semitendinosus are shorter and take different origins.

Final Answer: Sartorius ⇒

Answer: (C) [Go Back to Q22](#)



Q23.

Solution

Concept – femoral nerve roots: It arises from the lumbar plexus.

Step 1 – state the segments: The femoral nerve is formed from the posterior divisions of L2, L3 and L4.

Step 2 – territory: It supplies the anterior thigh extensors and skin of the antero-medial thigh and leg.

Why the other options are wrong:

- B: L4-S3 is the sciatic nerve.
- C: L1-L2 gives the genitofemoral nerve.
- D: S1-S3 contributes to the sacral plexus.

Final Answer: L2-L4 ⇒

Answer: (A) [Go Back to Q23](#)

Q24.

Solution

Concept – deep inguinal ring: It is the entrance to the inguinal canal in the transversalis fascia.

Step 1 – state the relation: The deep ring lies **just lateral to the inferior epigastric vessels**.

Step 2 – clinical use: This relation distinguishes an indirect hernia (lateral to the vessels) from a direct one (medial).

Why the other options are wrong:

- B: the femoral vessels lie below the inguinal ligament.
- C and D: the external iliac vein and superficial epigastric vessels are not the reference landmark for the deep ring.

Final Answer: Inferior epigastric vessels ⇒

Answer: (A) [Go Back to Q24](#)



Q25.

Solution

Concept – three arteries of the spermatic cord: Testicular artery, cremasteric artery and artery to the ductus deferens.

Step 1 – spot the non-artery: The **pampiniform plexus** is a venous network, not an artery.

Step 2 – its role: It drains the testis and cools arterial blood by countercurrent exchange.

Why the other options are wrong:

- A, B, D: testicular, cremasteric and deferential arteries are the three true arteries.

Final Answer: Pampiniform plexus is not an artery ⇒

Answer: (C) [Go Back to Q25](#)

Q26.

Solution

Concept – descent of the testis: A guiding cord pulls the testis down.

Step 1 – name it: The **gubernaculum** guides the testis from the posterior abdominal wall to the scrotum.

Step 2 – fate: It persists as the scrotal ligament.

Why the other options are wrong:

- A: the processus vaginalis is the peritoneal pouch, not the guide.
- B: cremaster is a muscle derived from the abdominal wall.
- C: the round ligament is the female homologue, guiding the ovary/uterus.

Final Answer: Gubernaculum ⇒

Answer: (D) [Go Back to Q26](#)



Q27.

Solution

Concept – vas deferens and the ureter: Near the bladder the vas crosses the ureter.

Step 1 – state the relation: The ductus deferens passes **superior (anterior)** to the ureter (“water under the bridge” in the male).

Step 2 – surgical note: This crossing is a landmark during pelvic surgery.

Why the other options are wrong:

- A, B, C: the internal iliac artery, obturator nerve and inferior epigastric artery are not the structure crossed at this point.

Final Answer: The ureter $\Rightarrow$ D

Answer: (D) [Go Back to Q27](#)

Q28.

Solution

Concept – zonal anatomy of the prostate: Benign and malignant growth favour different zones.

Step 1 – name the BPH zone: Benign prostatic hyperplasia arises in the **transitional zone** around the urethra.

Step 2 – contrast: Most carcinomas arise in the peripheral zone.

Why the other options are wrong:

- A: the peripheral zone is the site of cancer, not BPH.
- B and D: the central zone and anterior fibromuscular stroma are not the main BPH site.

Final Answer: Transitional zone $\Rightarrow$ C

Answer: (C) [Go Back to Q28](#)



Q29.

Solution

Concept – prostatic venous plexus: It communicates with the vertebral venous (Batson) plexus.

Step 1 – trace the spread: Valveless connections let tumour cells reach the **vertebral column**.

Step 2 – clinical picture: Prostatic cancer classically causes osteoblastic (sclerotic) spinal metastases.

Why the other options are wrong:

- A, C, D: lungs, brain and liver are less characteristic early sites than the spine for prostate cancer.

Final Answer: Vertebral column ⇒

Answer: (B) [Go Back to Q29](#)

Q30.

Solution

Concept – cremaster innervation: It forms the efferent limb of the cremasteric reflex.

Step 1 – name the nerve: The **genital branch of the genitofemoral nerve** supplies cremaster.

Step 2 – reflex arc: Stroking the medial thigh (ilioinguinal afferent) elevates the testis via this efferent.

Why the other options are wrong:

- A: ilioinguinal is the afferent limb, not motor to cremaster.
- B and C: iliohypogastric and pudendal nerves do not supply cremaster.

Final Answer: Genitofemoral nerve ⇒

Answer: (D) [Go Back to Q30](#)



Q31.

Solution

Concept – site of fertilization: The sperm meets the oocyte in the lateral tube.

Step 1 – name the site: Fertilization occurs in the **ampulla of the uterine tube**.

Step 2 – follow-up: The zygote is then swept toward the uterus for implantation.

Why the other options are wrong:

- A: the uterine cavity is the site of implantation, not fertilization.
- B and D: the follicle and cervix are not fertilization sites.

Final Answer: Ampulla of the uterine tube $\Rightarrow$

Answer: (C) [Go Back to Q31](#)

Q32.

Solution

Concept – implantation timing: The blastocyst embeds about a week after fertilization.

Step 1 – state the day: Implantation begins around **day 6 to 7**.

Step 2 – add detail: It is usually complete by about day 10 to 12.

Why the other options are wrong:

- B: day 1-2 is still the cleavage (zygote) stage.
- C and D: days 14 and 21 fall in the gastrulation/neurulation weeks.

Final Answer: Day 6 to 7 $\Rightarrow$

Answer: (A) [Go Back to Q32](#)

Q33.

Solution

Concept – bilaminar disc: The week-2 embryo has two layers.

Step 1 – name them: The **epiblast and hypoblast**.

Step 2 – their fate: The epiblast gives rise to all three germ layers at gastrulation.

Why the other options are wrong:



- A: the definitive germ layers form only after gastrulation (week 3).
- B: trophoblast layers surround the conceptus but are not the embryonic disc.
- D: the amnion and yolk sac are cavities, not the disc layers.

Final Answer: Epiblast and hypoblast $\Rightarrow$

Answer: (C) [Go Back to Q33](#)

Q34.

Solution

Concept – gastrulation: Week 3 converts the bilaminar to a trilaminar disc.

Step 1 – name the structure: Cells migrate through the **primitive streak** to form the three germ layers.

Step 2 – outcome: Ectoderm, mesoderm and endoderm are established.

Why the other options are wrong:

- A: the neural tube forms later, in neurulation.
- B: the notochordal plate arises from streak cells but is not the ingress route.
- D: the cloacal membrane is a caudal landmark, not the site of gastrulation.

Final Answer: Primitive streak $\Rightarrow$

Answer: (C) [Go Back to Q34](#)

Q35.

Solution

Concept – fate of the notochord: It largely regresses as the vertebrae form.

Step 1 – name the remnant: Its only adult remnant is the **nucleus pulposus** of each intervertebral disc.

Step 2 – clinical link: A notochordal tumour (chordoma) can arise along the axial skeleton.

Why the other options are wrong:

- B, C, D: the ligamenta flava, anterior longitudinal and denticulate ligaments are not notochordal derivatives.

Final Answer: Nucleus pulposus $\Rightarrow$



Answer: (A) [Go Back to Q35](#)

Q36.

Solution

Concept – ectopic pregnancy: Most implant before reaching the uterus.

Step 1 – name the commonest site: The **ampulla of the uterine tube**.

Step 2 – clinical danger: Tubal rupture causes acute abdomen and haemorrhage.

Why the other options are wrong:

- A, B, D: ovarian, abdominal and cervical ectopics are far rarer than ampullary.

Final Answer: Ampulla of the uterine tube ⇒

Answer: (C) [Go Back to Q36](#)

Q37.

Solution

Concept – source of hCG: The outer trophoblast layer is hormonally active.

Step 1 – name the cell: The **syncytiotrophoblast** secretes hCG.

Step 2 – role: hCG maintains the corpus luteum and its progesterone output in early pregnancy.

Why the other options are wrong:

- A: the hypoblast forms the yolk sac lining.
- B: the cytotrophoblast is the inner proliferative layer.
- C: the corpus luteum responds to hCG but does not secrete it.

Final Answer: Syncytiotrophoblast ⇒

Answer: (D) [Go Back to Q37](#)



Q38.

Solution

Concept – epididymal epithelium: Tall cells with long apical processes and basal nuclei at varying heights.

Step 1 – read the figure: This describes **pseudostratified columnar epithelium with stereocilia**.

Step 2 – function: The stereocilia absorb fluid and aid sperm maturation.

Why the other options are wrong:

- A: simple squamous is a single flat layer.
- C: transitional epithelium lines the urinary tract.
- D: stratified squamous is a protective multilayer.

Final Answer: Pseudostratified columnar with stereocilia ⇒ **B**

Answer: (B) [Go Back to Q38](#)

Q39.

Solution

Concept – reticular fibres: They form the stroma of lymphoid organs.

Step 1 – name the collagen: Reticular fibres are made of **type III collagen**, argyrophilic (silver-staining).

Step 2 – where they are: They support the spleen, lymph nodes, bone marrow and liver.

Why the other options are wrong:

- B: type I collagen is in tendon, bone and dermis.
- C: elastin gives recoil, not a reticular mesh.
- D: type II collagen is in cartilage.

Final Answer: Type III collagen ⇒ **A**

Answer: (A) [Go Back to Q39](#)



Q40.

Solution

Concept – Nissl bodies: They mark the protein-synthesising machinery of neurons.

Step 1 – identify them: Nissl substance is **rough endoplasmic reticulum with ribosomes**.

Step 2 – clinical link: It disperses (chromatolysis) after axonal injury.

Why the other options are wrong:

- A, C, D: mitochondria, Golgi and lysosomes are separate organelles, not Nissl substance.

Final Answer: Rough endoplasmic reticulum ⇒ **B**

Answer: (B) [Go Back to Q40](#)

Q41.

Solution

Concept – space of Disse: It is the exchange space of the liver sinusoid.

Step 1 – state its position: It lies between the **hepatocytes and the sinusoidal endothelium**.

Step 2 – function: Plasma percolates here, bathing hepatocyte microvilli; it houses stellate (Ito) cells.

Why the other options are wrong:

- B: the space between hepatocytes carries the bile canaliculus.
- C and D: these describe other structures, not the space of Disse.

Final Answer: Between hepatocytes and sinusoidal endothelium ⇒ **A**

Answer: (A) [Go Back to Q41](#)



Q42.

Solution

Concept – zones of the adrenal cortex: Three zones make different steroids (GFR: salt, sugar, sex).

Step 1 – identify the cortisol zone: The wide middle **zona fasciculata** secretes glucocorticoids (cortisol).

Step 2 – place the neighbours: Zona glomerulosa makes aldosterone; zona reticularis makes androgens.

Why the other options are wrong:

- A: zona glomerulosa secretes mineralocorticoids.
- B: zona reticularis secretes sex steroids.
- C: the medulla secretes catecholamines.

Final Answer: Zona fasciculata ⇒ D

Answer: (D) [Go Back to Q42](#)

Q43.

Solution

Concept – islets of Langerhans: Different islet cells secrete different hormones.

Step 1 – name the beta-cell product: Beta cells, the majority and centrally placed, secrete **insulin**.

Step 2 – place the others: Alpha cells make glucagon; delta cells somatostatin.

Why the other options are wrong:

- A: glucagon is from alpha cells.
- B: somatostatin is from delta cells.
- D: pancreatic polypeptide is from PP (F) cells.

Final Answer: Insulin ⇒ C

Answer: (C) [Go Back to Q43](#)



Q44.

Solution

Concept – trinucleotide-repeat disorders: Repeat length can grow between generations.

Step 1 – name the phenomenon: Earlier onset and greater severity in successive generations is **anticipation**.

Step 2 – link to the disease: Myotonic dystrophy (CTG in DMPK) is a classic example.

Why the other options are wrong:

- A: pleiotropy is one gene causing many effects.
- C: mosaicism is two cell lines in one individual.
- D: imprinting is parent-of-origin gene silencing.

Final Answer: Anticipation $\Rightarrow$ **B**

Answer: (B) [Go Back to Q44](#)

Q45.

Solution

Concept – Gaucher disease: A sphingolipidosis with a specific enzyme defect.

Step 1 – name the enzyme: Deficiency of **glucocerebrosidase** causes glucocerebroside accumulation.

Step 2 – recall the cell: Lipid-laden “crumpled paper” macrophages (Gaucher cells) fill the spleen and marrow.

Why the other options are wrong:

- A: hexosaminidase A deficiency is Tay-Sachs.
- C: sphingomyelinase deficiency is Niemann-Pick.
- D: alpha-galactosidase A deficiency is Fabry disease.

Final Answer: Glucocerebrosidase $\Rightarrow$ **B**

Answer: (B) [Go Back to Q45](#)



Q46.

Solution

Concept – ABO inheritance: Alleles A and B are expressed together.

Step 1 – name the pattern: Full expression of both antigens in group AB is codominance.

Step 2 – contrast: This differs from incomplete dominance, where a blended intermediate appears.

Why the other options are wrong:

- B: complete dominance would mask one allele.
- C: incomplete dominance gives a blended phenotype.
- D: ABO is autosomal, not X-linked.

Final Answer: Codominance $\Rightarrow$

Answer: (A) [Go Back to Q46](#)

Q47.

Solution

Concept – Barr body rule: The number of Barr bodies equals the number of X chromosomes minus one.

Step 1 – apply to 47,XXY: There are two X chromosomes, so $2 - 1 = 1$ Barr body.

Step 2 – confirm: The extra X is inactivated (Lyonised) and seen as one Barr body.

Why the other options are wrong:

- A and B: three or two Barr bodies would need four or three X chromosomes.
- C: zero Barr bodies occurs with a single X (e.g. normal male or Turner).

Final Answer: One Barr body $\Rightarrow$

Answer: (D) [Go Back to Q47](#)



Q48.

Solution

Concept – boxer's fracture: A punch drives force along the fifth ray.

Step 1 – name the site: It fractures the **neck of the fifth metacarpal**.

Step 2 – clinical sign: There is dorsal angulation and loss of the fifth knuckle prominence.

Why the other options are wrong:

- A: scaphoid fracture follows a fall on the outstretched hand.
- C: distal radius fracture is a Colles fracture.
- D: base of the first metacarpal is a Bennett fracture.

Final Answer: Neck of the fifth metacarpal ⇒ **B**

Answer: (B) [Go Back to Q48](#)

Q49.

Solution

Concept – rib notching: Enlarged collateral arteries erode the rib undersurfaces.

Step 1 – name the cause: Inferior rib notching is classic for **coarctation of the aorta**.

Step 2 – mechanism: Blood bypasses the narrowing through dilated, pulsatile intercostal arteries.

Why the other options are wrong:

- A, B, D: pulmonary embolism, tetralogy of Fallot and ASD do not cause rib notching.

Final Answer: Coarctation of the aorta ⇒ **C**

Answer: (C) [Go Back to Q49](#)



Q50.

Solution

Concept – Bohler’s angle: It gauges the normal contour of the heel bone.

Step 1 – state the rule: Flattening of Bohler’s angle (below about 20 degrees) indicates a **calcaneal** fracture.

Step 2 – mechanism: An axial fall crushes the calcaneus and reduces the angle.

Why the other options are wrong:

- A, B, C: the talus, navicular and cuboid are not measured by Bohler’s angle.

Final Answer: Calcaneus $\Rightarrow$

Answer: (D) [Go Back to Q50](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	2	B	3	B	4	A	5	A
6	D	7	B	8	B	9	D	10	A
11	D	12	A	13	B	14	C	15	C
16	B	17	A	18	A	19	B	20	D
21	C	22	C	23	A	24	A	25	C
26	D	27	D	28	C	29	B	30	D
31	C	32	A	33	C	34	C	35	A
36	C	37	D	38	B	39	A	40	B
41	A	42	D	43	C	44	B	45	B
46	A	47	D	48	B	49	C	50	D

