



General Instructions

- (i) This booklet contains 200 questions, each provided with a complete, step-by-step solution.
- (ii) It comprises 200 single-correct multiple-choice questions.
- (iii) These questions follow the NEET PG examination pattern.
- (iv) Each correct answer is awarded +4 marks, with -1 for an incorrect answer.
- (v) The actual NEET paper has 180 questions to be attempted in 3 hours 20 minutes.
- (vi) Use of calculators is not permitted.
- (vii) Attempt each question on your own before reviewing the given solution.

1. Which is the first carpal bone to ossify (appear)?

- (A) Trapezium
- (B) Capitate
- (C) Pisiform
- (D) Lunate

Correct Answer: (B) Capitate

SOLUTION:

Step 1: Skeletal maturation of the wrist is assessed by watching the order in which carpal ossification centres appear on radiographs.

Step 2: Ossification begins centrally in the wrist. The capitate, lying in the centre of the distal carpal row, is the very first to develop a bony centre during infancy.

Step 3: Reading outward in time after the capitate: hamate, then triquetrum, lunate, the scaphoid-trapezoid pair, trapezium, and finally the pisiform near puberty.

Step 4: Since trapezium, lunate and pisiform all appear much later, only the capitate satisfies being earliest.

Capitate

Quick Tip: Think of the bone in the centre of the wrist - it leads the sequence at about 1 year.

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2. Which muscle is derived from the third pharyngeal arch?

- (A) Tensor tympani
- (B) Stylopharyngeus
- (C) Cricothyroid
- (D) None

Correct Answer: (B) Stylopharyngeus

SOLUTION:

Step 1: A reliable shortcut links every pharyngeal arch muscle to the cranial nerve that follows it.

Step 2: The glossopharyngeal nerve is the nerve of the third arch. Because the stylopharyngeus is the muscle supplied by the glossopharyngeal nerve, it must be the third arch muscle.

Step 3: By contrast, tensor tympani belongs to arch one (trigeminal mandibular supply), and cricothyroid belongs to arch four (vagus, external laryngeal nerve), so both are excluded.

Step 4: The single third arch derivative is therefore confirmed.

Stylopharyngeus

Quick Tip: Match the arch to its nerve - the third arch follows the glossopharyngeal nerve.



3. Which of the following is true about cardiac muscle?

- (A) Spindle shaped
- (B) Large central nucleus
- (C) No gap junctions
- (D) Arranged in sheets

Correct Answer: (B) Large central nucleus

SOLUTION:

Step 1: To pick the true statement, recall the histology of the three muscle types and compare.

Step 2: A centrally located nucleus is a hallmark of cardiac muscle. In skeletal muscle the multiple nuclei sit peripherally, whereas the single central nucleus belongs to the cardiac myocyte, validating that choice.

Step 3: The remaining options describe other tissues or are factually incorrect. Spindle shape is a smooth muscle trait, intercalated discs of cardiac muscle are packed with gap junctions for syncytial conduction, and cardiac fibres form a branching network instead of sheets.

Step 4: Only the central nucleus statement survives scrutiny.

Large central nucleus

Quick Tip: Recall where the nucleus sits in a cardiac myocyte versus a skeletal fibre.

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4. The radial bursa is the synovial sheath covering the tendon of which muscle?

- (A) Flexor digitorum superficialis (FDS)
- (B) Flexor digitorum profundus (FDP)
- (C) Flexor pollicis longus (FPL)
- (D) Flexor carpi radialis (FCR)

Correct Answer: (C) Flexor pollicis longus (FPL)

SOLUTION:

Step 1: The naming of the carpal bursae follows the side of the hand they serve.

Step 2: Radial corresponds to the thumb side. The flexor pollicis longus is the long flexor of the thumb, and its synovial sheath is precisely the radial bursa, which continues to the distal phalanx of the thumb.

Step 3: The ulnar bursa, on the medial side, wraps the eight tendons of FDS and FDP, so those two options describe the ulnar bursa rather than the radial one.

Step 4: Flexor carpi radialis lies in its own tunnel and is not involved. The thumb flexor therefore defines the radial bursa.

Flexor pollicis longus (FPL)

Quick Tip: Radial means thumb side - which long flexor goes to the thumb?

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5. All of the following are contents of the midpalmar space EXCEPT:

- (A) 2nd lumbrical
- (B) Flexor digitorum profundus (FDP) tendon of the 3rd finger
- (C) 1st lumbrical
- (D) Flexor digitorum profundus (FDP) tendon of the 4th finger

Correct Answer: (C) 1st lumbrical

SOLUTION:

Step 1: Identify which fascial compartment of the palm each listed structure occupies.

Step 2: The intermediate palmar septum splits the deep palm into a lateral thenar space and a medial midpalmar space. The midpalmar space houses the deeper tendons and lumbricals of the middle, ring and little fingers.

Step 3: Working through the options, the FDP tendons of the 3rd and 4th fingers and the 2nd lumbrical all sit within the midpalmar space, so they are genuine contents.

Step 4: The 1st lumbrical accompanies the index finger flexor and lies in the thenar space, placing it outside the midpalmar space. That makes it the odd one out.

1st lumbrical

Quick Tip: Which lumbrical belongs to the thenar space rather than the midpalmar space?



6. Which structure passes deep to the flexor retinaculum at the ankle?

- (A) Posterior tibial artery
- (B) Long (great) saphenous vein
- (C) Tibialis anterior tendon
- (D) Peroneus tertius

Correct Answer: (A) Posterior tibial artery

SOLUTION:

Step 1: Focus on the tarsal tunnel, the passage beneath the flexor retinaculum behind the medial malleolus.

Step 2: Its contents in order are the tibialis posterior tendon, flexor digitorum longus tendon, the posterior tibial vessels, the tibial nerve, and the flexor hallucis longus tendon. The posterior tibial artery clearly belongs to this list, so it travels deep to the flexor retinaculum.

Step 3: The remaining choices are anterior or superficial: the great saphenous vein is a superficial vein ascending in front of the medial malleolus, and both tibialis anterior and peroneus tertius are dorsiflexor tendons confined to the extensor retinaculum on the front of the ankle.

Step 4: Only the posterior tibial artery fits the tarsal tunnel.

Posterior tibial artery

Quick Tip: Think tarsal tunnel - Tom, Dick, And Very Nervous Harry.

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7. The skin and fascia of the great toe drain into which group of lymph nodes?

- (A) Superficial inguinal lymph nodes
- (B) External iliac nodes
- (C) Internal iliac nodes
- (D) Deep inguinal nodes

Correct Answer: (A) Superficial inguinal lymph nodes

SOLUTION:

Step 1: Trace the superficial lymphatic pathway from the medial foot upward.

Step 2: Lymph from the great toe and the medial foot runs alongside the great saphenous vein. Following this route, it reaches the superficial inguinal nodes in the groin as the first drainage station, confirming that choice.

Step 3: The deeper options are downstream or unrelated. The deep inguinal nodes chiefly handle deep limb lymph and efferents from the superficial set, and the external and internal iliac nodes are pelvic relays that receive from the inguinal groups rather than directly from the toe.

Step 4: The initial nodes draining the great toe skin and fascia are thus the superficial inguinal group.

Superficial inguinal lymph nodes

Quick Tip: Superficial lymphatics of the medial foot follow the great saphenous vein to the groin.

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8. Which of the following is NOT true about the right principal (main) bronchus?

- (A) Shorter
- (B) Wider
- (C) More horizontal
- (D) In the line of trachea

Correct Answer: (C) More horizontal

SOLUTION:

Step 1: Recall the airway split. At the carina the windpipe divides into two main bronchi that are deliberately asymmetric in size and slope.

Step 2: Right side profile - broad bore, only about 2.5 cm in length, and steeply downward so it continues nearly straight from the trachea (roughly 25 degrees off the midline). This steep angle is the reason aspirated objects favour the right lung.

Step 3: Left side profile - slimmer, around 5 cm long, and set at a flatter slant (roughly 45 degrees off the midline), giving it a more horizontal run as it heads toward the left hilum.

Step 4: Match the options to the right bronchus. Shorter (yes), wider (yes), and in the line of the trachea (yes) all fit the right bronchus. "More horizontal" belongs to the left bronchus, so it is the false statement about the right bronchus.

More horizontal (this describes the left bronchus, not the right)

Quick Tip: The right bronchus is wider, shorter and more vertical; horizontal describes the left.

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9. Which part of the levator ani provides support to the prostate (levator prostatae)?

- (A) Pubococcygeus
- (B) Ischiococcygeus
- (C) Iliococcygeus
- (D) None of the above

Correct Answer: (A) Pubococcygeus

SOLUTION:

Step 1: Identify the muscle group. The pelvic floor sling is the levator ani, made of three named slips: pubococcygeus, iliococcygeus, and ischiococcygeus.

Step 2: Focus on which slip wraps the urogenital organs. Only the pubococcygeus reaches forward to the midline organs. Its front-most fibres curl around the prostate in the male, and this specialised cuff is named the levator prostatae - the direct muscular support of the gland.

Step 3: Note the female counterpart for confirmation - the same anterior pubococcygeus fibres become the sphincter vaginae, proving this slip is the one related to the pelvic organs.

Step 4: Eliminate the rest. Iliococcygeus runs to the anococcygeal raphe and coccyx, and ischiococcygeus (coccygeus) backs the floor posteriorly - neither contacts the prostate. The supporting part is therefore the pubococcygeus.

Pubococcygeus (forms levator prostatae)

Quick Tip: Anterior fibres of pubococcygeus form the levator prostatae.



10. What is the approximate length of the anal canal?

- (A) 10 - 15 mm
- (B) 15 - 20 mm
- (C) 25 - 30 mm
- (D) 35 - 40 mm

Correct Answer: (D) 35 - 40 mm

SOLUTION:

Step 1: Picture the end of the gut tube. After the rectum, the short muscular passage that ends at the anus is the anal canal, running down and back through the pelvic floor.

Step 2: Fix the standard figure. Anatomy texts quote its length as 3.8 cm. Converting to millimetres gives about 38 mm.

Step 3: Map this value onto the choices. 38 mm sits comfortably inside the 35 to 40 mm band, while 10 to 15, 15 to 20, and 25 to 30 mm all fall short of the true length.

Step 4: Hence the anal canal measures 35 to 40 mm.

35 - 40 mm (about 3.8 cm)

Quick Tip: The anal canal is about 3.8 cm long.

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11. The chorda tympani is a content of which part of the ear?

- (A) Middle ear
- (B) Inner ear
- (C) External auditory canal
- (D) None of the above

Correct Answer: (A) Middle ear

SOLUTION:

Step 1: Split the ear into its three compartments - external (pinna and canal), middle (tympanic cavity), and inner (labyrinth).

Step 2: List what the tympanic cavity holds: malleus, incus and stapes; the tensor tympani and stapedius muscles; the tympanic nerve plexus; and the chorda tympani as it cuts across the cavity.

Step 3: Trace the chorda tympani - a facial nerve branch carrying taste and secretomotor fibres that passes through the middle ear between the malleus handle and the long process of the incus before exiting to reach the lingual nerve.

Step 4: Its passage through the tympanic cavity places it firmly among middle ear contents, ruling out the inner ear and external canal.

Middle ear (tympanic cavity)

Quick Tip: It crosses the tympanic cavity between malleus and incus.

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12. Which is the chief (main) artery supplying the lateral surface of the cerebral hemisphere?

- (A) Anterior cerebral artery
- (B) Posterior cerebral artery
- (C) Middle cerebral artery
- (D) Posterior inferior cerebellar artery

Correct Answer: (C) Middle cerebral artery

SOLUTION:

Step 1: Map the three cerebral arteries to the surfaces of the hemisphere. Medial surface goes mainly to the anterior cerebral, the occipital and inferior temporal regions to the posterior cerebral, and the broad outer face to a third vessel.

Step 2: Identify that third vessel - the middle cerebral artery, the continuation and largest branch of the internal carotid, travelling in the lateral sulcus.

Step 3: Its cortical branches fan over almost the entire lateral surface, feeding the frontal, parietal, and temporal opercular cortex, which is why a middle cerebral stroke classically affects the face and arm more than the leg.

Step 4: The PICA is a cerebellar/medullary vessel and is irrelevant to the cerebrum. So the dominant artery of the lateral hemispheric surface is the middle cerebral artery.

Middle cerebral artery

Quick Tip: The largest branch of the internal carotid, running in the lateral sulcus.

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13. Type 3 respiratory failure occurs due to which of the following?

- (A) Post-operative atelectasis
- (B) Kyphoscoliosis
- (C) Flail chest
- (D) Pulmonary fibrosis

Correct Answer: (A) Post-operative atelectasis

SOLUTION:

Step 1: Recall the four-type scheme of respiratory failure. Type 1 = oxygenation failure, Type 2 = ventilation/pump failure, Type 3 = perioperative, Type 4 =

circulatory shock related.

Step 2: Zoom in on Type 3. It is essentially Type 1 occurring around surgery, driven by collapse of dependent alveoli when functional residual capacity falls and the diaphragm and abdominal wall behave abnormally under anaesthesia.

Step 3: Match the trigger. Post-operative atelectasis is the textbook cause of this perioperative collapse, so it is the Type 3 answer.

Step 4: Rule out the rest - chest wall problems like kyphoscoliosis and flail chest impair the pump and give Type 2, while parenchymal disease such as pulmonary fibrosis impairs gas exchange and gives Type 1.

Post-operative atelectasis (Type 3 / perioperative failure)

Quick Tip: Type 3 is the perioperative form, caused by atelectasis after surgery.

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14. Hypoxic pulmonary vasoconstriction is best described as which of the following?

- (A) Irreversible pulmonary vasoconstriction due to hypoxia
- (B) Reversible pulmonary vasoconstriction due to hypoxia
- (C) Directs blood to poorly ventilated areas
- (D) Occurs hours after pulmonary vasoconstriction

Correct Answer: (B) Reversible pulmonary vasoconstriction due to hypoxia

SOLUTION:

Step 1: Define HPV. When an alveolus is poorly ventilated and its local oxygen falls, the nearby small pulmonary resistance arteries actively tighten - this is hypoxic pulmonary vasoconstriction.

Step 2: Understand its goal. By squeezing vessels in low-oxygen zones, the lung

shunts blood toward well aerated segments, sharpening ventilation-perfusion matching and protecting arterial oxygen levels.

Step 3: Note the dynamics. The response is prompt (seconds to minutes) and fully reversible - restoring alveolar oxygen relaxes the arteries and reopens flow.

Step 4: Test the options. It is not irreversible (a fails), it diverts blood AWAY from poorly ventilated areas rather than toward them (c fails), and it is not delayed by hours (d fails). The accurate statement is reversible pulmonary vasoconstriction due to hypoxia.

Reversible pulmonary vasoconstriction due to hypoxia

Quick Tip: It is an active, reversible response diverting blood away from poorly ventilated lung.

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15. Direct Fick method of measuring cardiac output requires estimation of:

- (A) O₂ content of arterial blood
- (B) O₂ consumption per unit time
- (C) Arteriovenous O₂ difference
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: Think of the lungs as the organ that adds oxygen to the blood. The Fick method exploits the fact that whatever oxygen the body burns per minute must have been loaded onto the blood as it passed through the lungs.

Step 2: Mathematically, $CO = \frac{VO_2}{C_aO_2 - C_vO_2}$, where VO_2 is oxygen consumed per

minute, C_aO_2 is arterial oxygen content and C_vO_2 is mixed venous oxygen content.

Step 3: To plug numbers into this equation you require three measurements: oxygen consumption per unit time, the oxygen content of arterial blood, and the gap between arterial and venous oxygen (the A-V difference). Each option in the question names one of these mandatory inputs.

Step 4: Because no single measurement is sufficient on its own, all of them together are needed.

All of the above

Quick Tip: Cardiac output = O₂ consumption / A-V O₂ difference, so every listed quantity is needed.

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16. The temperature regulating centre is located in the:

- (A) Supraoptic nucleus of hypothalamus
- (B) Paraventricular nucleus of hypothalamus
- (C) Preoptic nucleus of hypothalamus
- (D) Suprachiasmatic nucleus of hypothalamus

Correct Answer: (C) Preoptic nucleus of hypothalamus

SOLUTION:

Step 1: Temperature homeostasis is a hypothalamic function. Among the hypothalamic nuclei, the one that senses and sets core body temperature is the preoptic nucleus of the anterior hypothalamus.

Step 2: Warm-sensitive neurons here increase their firing when blood temperature rises, switching on cooling mechanisms (sweating, vasodilation).

When temperature falls, the posterior hypothalamus drives warming mechanisms (shivering, vasoconstriction).

Step 3: Eliminate the wrong options: supraoptic and paraventricular nuclei are neuroendocrine (ADH, oxytocin), and the suprachiasmatic nucleus governs the sleep-wake circadian rhythm, not thermoregulation.

Preoptic nucleus of hypothalamus

Quick Tip: The thermostat sits in the anterior hypothalamus preoptic area, not the neuroendocrine or circadian nuclei.



17. Joint position sense and vibration sense are carried by which type of nerve fibre?

- (A) A alpha
- (B) A beta
- (C) A gamma
- (D) B

Correct Answer: (A) A alpha

SOLUTION:

Step 1: Match the modality to the fibre size. Conscious proprioception and vibration are fine, high-fidelity senses that demand the fastest conduction, so they ride the largest myelinated axons.

Step 2: The largest, fastest somatic afferents are A alpha fibres (groups Ia and Ib). They relay impulses from muscle spindles, Golgi tendon organs, and the receptors serving position and vibration sense up the dorsal columns.

Step 3: Rule out the others: A beta serves touch and pressure, A gamma is an efferent supply to muscle spindles, and B fibres are thin preganglionic autonomic

fibres. None of these carry proprioception or vibration.

A alpha

Quick Tip: Proprioception and vibration use the largest, fastest myelinated somatic afferents.

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18. Normal cerebral blood flow is approximately how many ml/min?

- (A) 55
- (B) 150
- (C) 750
- (D) 1000

Correct Answer: (C) 750

SOLUTION:

Step 1: Start from cardiac output, about 5000 ml/min at rest. The brain receives roughly 15 percent of this, giving a cerebral blood flow near 750 ml/min.

Step 2: Cross-check with the per-mass figure: the brain weighs about 1400 g and receives about 50 to 55 ml/100 g/min, so 14 times 54 is close to 750 ml/min. The two estimates agree.

Step 3: The 55 option is a trap because it is the flow per 100 g, while 150 and 1000 do not match either estimate. The whole-brain answer is 750 ml/min.

750 ml/min

Quick Tip: The brain gets about 15 percent of cardiac output; the 55 figure is per 100 g, not total.

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19. Cell bodies of orexigenic neurons are present in the:

- (A) Dorsal raphe
- (B) Locus coeruleus
- (C) Lateral hypothalamic area
- (D) Hippocampus

Correct Answer: (C) Lateral hypothalamic area

SOLUTION:

Step 1: Decode the term: orexigenic means appetite-promoting. The brain's appetite-driving peptides, orexin (hypocretin) and MCH, are synthesised by neurons whose somata sit in the lateral hypothalamic area.

Step 2: This region is the feeding centre. Lesions here reduce eating and produce wasting, whereas stimulation provokes overeating, matching the orexigenic label.

Step 3: The other choices are unrelated transmitter centres: dorsal raphe (serotonin), locus coeruleus (noradrenaline, arousal), and hippocampus (memory). None house orexin neurons.

Lateral hypothalamic area

Quick Tip: Orexin neurons sit in the lateral hypothalamic feeding centre.

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20. Hyperosmolarity of the renal medulla is most importantly due to:

- (A) Potassium
- (B) Sodium
- (C) Glucose
- (D) Chloride

Correct Answer: (B) Sodium

SOLUTION:

Step 1: Picture the loop of Henle as a countercurrent multiplier. Its thick ascending limb actively extrudes salt without letting water follow, loading the surrounding medulla with solute.

Step 2: The transporter responsible is the Na-K-2Cl symporter, but the driving and dominant ion is sodium. The explanation explicitly notes that NaCl is the most important solute for maintaining a high medullary interstitial osmolarity.

Step 3: Glucose has no part in medullary hypertonicity, and although potassium and chloride accompany sodium across the membrane, sodium is the principal osmotic agent. Therefore, of the listed single ions, sodium is the best answer.

Sodium (as NaCl)

Quick Tip: The countercurrent mechanism deposits mainly NaCl; sodium is the dominant solute.

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21. Which cells are referred to as pacemaker cells in relation to the basic electrical rhythm (BER) of the gut?

- (A) SA node
- (B) AV node
- (C) Interstitial cells of Cajal
- (D) Pyramidal cells

Correct Answer: (C) Interstitial cells of Cajal

SOLUTION:

Step 1: The gut has its own rhythm generator. The slow waves of the basic electrical rhythm arise without nerve input from specialised pacemaker cells embedded in the gut wall.

Step 2: These pacemakers are the interstitial cells of Cajal, mesenchyme-derived cells located near the myenteric plexus in the distal stomach and small intestine and at the submucosal border of the circular muscle in the colon. They are absent in the esophagus and proximal stomach.

Step 3: Discard the distractors: SA node and AV node are cardiac pacemaker and conduction tissue, while pyramidal cells are neurons of the cerebral cortex. Only the interstitial cells of Cajal pace the gut.

Interstitial cells of Cajal

Quick Tip: The gut slow-wave pacemakers are mesenchymal cells near the myenteric plexus, not cardiac nodes.



22. Which hormone increases with age?

- (A) GH
- (B) Prolactin
- (C) Parathormone
- (D) Insulin

Correct Answer: (C) Parathormone

SOLUTION:

Step 1: Pick the hormone whose blood concentration trends upward across the human lifespan. The answer is parathormone, the secretory product of the parathyroid glands.

Step 2: Older adults commonly have lower active vitamin D (1,25-dihydroxycholecalciferol) because the kidney's 1α -hydroxylase activity falls. Less vitamin D means less intestinal calcium uptake, which nudges serum calcium down.

Step 3: A drop in ionised calcium is sensed by the calcium-sensing receptor on parathyroid chief cells, driving compensatory release of PTH. Over time this keeps PTH levels elevated in the elderly.

Step 4: Contrast this with the other choices: GH output falls (the somatopause), insulin action weakens leading to glucose intolerance, and prolactin stays unrelated to ageing. None of them rise the way PTH does.

Parathormone

Quick Tip: Think of the hormone behind senile osteoporosis and falling vitamin D.

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23. In the breast, lactiferous ducts are formed under the influence of which hormone?

- (A) Estrogen
- (B) Progesterone
- (C) LH
- (D) FSH

Correct Answer: (A) Estrogen

SOLUTION:

Step 1: Recall the simple rule for mammary morphogenesis: ducts equal estrogen, lobules equal progesterone.

Step 2: Under rising estrogen at puberty, the primitive duct buds elongate and branch to build the lactiferous duct tree that converges toward the nipple. This makes estrogen the duct-forming hormone.

Step 3: Progesterone then works on the estrogen-primed tissue to expand the lobuloalveolar units, which is a separate step from duct formation.

Step 4: The gonadotropins FSH and LH act on ovarian follicles and the corpus luteum, so their effect on the breast is only secondary. The direct answer to duct formation is therefore estrogen.

Estrogen

Quick Tip: Ducts versus lobules - one steroid grows the ducts, the other the alveoli.

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24. The most common type of calcium channels in skeletal muscle are?

- (A) T type
- (B) L type
- (C) R type
- (D) N type

Correct Answer: (B) L type

SOLUTION:

Step 1: The dominant calcium channel of skeletal muscle is the L-type, also known as the dihydropyridine receptor packed into the T-tubule walls.

Step 2: Functionally this channel acts as the voltage sensor of excitation-contraction coupling. When the surface action potential spreads down the T-tubule, the L-type channel changes shape and, through a direct physical link, opens the ryanodine receptor to flood the cytosol with calcium from the sarcoplasmic reticulum.

Step 3: The remaining options serve other tissues: T-type channels suit rhythmic, low-threshold firing; N-type and R-type channels dominate presynaptic nerve terminals controlling transmitter release. None of them is the principal skeletal muscle channel.

Step 4: The high concentration of L-type channels in the T-tubule system makes L type the correct choice.

L type

Quick Tip: It is the dihydropyridine receptor sitting in the T-tubule.

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25. Blood supply of the liver (in ml/100 g/min) is?

- (A) 1500-2000
- (B) 1000-1500
- (C) 50-60
- (D) 250-300

Correct Answer: (C) 50-60

SOLUTION:

Step 1: Separate the two ways hepatic flow is quoted: whole-organ flow in ml/min versus normalised flow in ml/100 g/min. The stem wants the normalised value.

Step 2: The liver receives the highest absolute blood flow of any organ, near **1500** ml/min, supplied by the portal vein (about two-thirds) and the hepatic artery (about one-third).

Step 3: Dividing that large total by the considerable mass of the liver gives a tissue-specific perfusion of approximately **50 to 60** ml per 100 g per minute. The distractor **1500-2000** is simply the total flow misread as per-100-g.

Step 4: Matching the units demanded, the answer is **50-60** ml/100 g/min.

50-60 ml/100 g/min

Quick Tip: Total liver flow is about 1500 ml/min, but they want it per 100 g.

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26. Von Willebrand factor is synthesized by all except?

- (A) Endothelial cells
- (B) Megakaryocytes
- (C) Hepatocytes
- (D) None

Correct Answer: (C) Hepatocytes

SOLUTION:

Step 1: Identify the odd one out among the listed cells with respect to von Willebrand factor production.

Step 2: Two recognised factories make vWF. Endothelial cells store it in Weibel-Palade bodies and release it on activation, making them the principal source. Megakaryocytes package it into the alpha-granules of platelets, so platelets carry vWF too.

Step 3: The liver, though responsible for synthesising the bulk of plasma clotting factors, does not produce vWF. It does make factor VIIIc, but vWF circulates as factor VIII's protective carrier and comes from endothelium and megakaryocytes, not hepatocytes.

Step 4: Because hepatocytes are not a vWF source, they are the exception asked for in this all-except question.

Hepatocytes

Quick Tip: Endothelium and megakaryocytes make it; one classic liver-made exception remains.

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27. Which element is required by phosphofructokinase?

- (A) Magnesium
- (B) Inorganic phosphate
- (C) Manganese
- (D) Copper

Correct Answer: (A) Magnesium

SOLUTION:

Step 1: Place PFK-1 as the committed, rate-controlling enzyme of glycolysis that phosphorylates fructose-6-phosphate using ATP.

Step 2: Every ATP-dependent kinase needs a divalent metal, and for PFK that metal is magnesium. ATP actually binds the active site as Mg-ATP, where the Mg^{2+} shields the repulsive negative charges of the phosphate chain and aligns the gamma-phosphate for transfer.

Step 3: Crystal structures place a magnesium ion bridging the phosphoryl groups of ADP and fructose-1,6-bisphosphate in the catalytically closed conformation, so its presence is essential for turnover.

Step 4: Inorganic phosphate is not the cofactor here, and neither manganese nor copper serves as the natural metal for this enzyme. The required element is magnesium.

Magnesium

Quick Tip: Kinases use ATP as the Mg-ATP complex - which metal?

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28. Which of the following is a serine protease?

- (A) Pepsin
- (B) Trypsin
- (C) Carboxypeptidase
- (D) None

Correct Answer: (B) Trypsin

SOLUTION:

Step 1: Match each enzyme to its mechanistic class and find the one whose catalysis depends on an active-site serine.

Step 2: Trypsin fits exactly. As a pancreatic serine protease it relies on the Ser-His-Asp catalytic triad, with serine performing the nucleophilic attack on the peptide carbonyl, and it preferentially cuts after arginine and lysine.

Step 3: The distractors fall into different families. Pepsin is an aspartic protease active in the acidic stomach, and carboxypeptidase is a zinc metalloexopeptidase that trims terminal residues. Neither employs a serine nucleophile.

Step 4: Among chymotrypsin-like enzymes, trypsin is the textbook serine protease, so it is the correct answer.

Trypsin

Quick Tip: Look for the enzyme with a Ser-His-Asp catalytic triad, not the acid or zinc protease.

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29. Which of the following is an aldose?

- (A) Fructose
- (B) Erythrulose
- (C) Glucose
- (D) None

Correct Answer: (C) Glucose

SOLUTION:

Step 1: Sugars are named for the functional group they hold. Place an aldehyde at the end of the chain and you get an aldose; place a keto group inside the chain and you get a ketose.

Step 2: Run through the choices. Fructose is the well known fruit sugar and is a ketohexose. Erythrulose is a four carbon ketose. Both belong to the ketose family.

Step 3: Glucose, the body's main circulating fuel, has its carbonyl as an aldehyde on the first carbon. That makes it an aldohexose, the prototype aldose.

Step 4: Since one valid aldose is present, the option None can be dismissed. Memory aid: glucose, galactose, mannose, ribose and glyceraldehyde are aldoses, while fructose, ribulose and the -ulose named sugars are ketoses.

Glucose

Quick Tip: Aldose has an aldehyde at C1; the -ulose sugars and fructose are ketoses.

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30. Gluconeogenesis from lactate needs all of the following except?

- (A) Transport of lactate from muscle to liver
- (B) Conversion of lactate to pyruvate
- (C) Transamination of pyruvate to alanine
- (D) None of the above

Correct Answer: (C) Transamination of pyruvate to alanine

SOLUTION:

Step 1: The stem asks which listed event does not belong to lactate-driven gluconeogenesis, so we look for the odd one out.

Step 2: Picture the Cori cycle. Muscle pours out lactate during heavy work; the bloodstream ferries it to the liver. That carriage step is essential, so option a stays in.

Step 3: Once inside hepatocytes, lactate dehydrogenase oxidises lactate to pyruvate. Pyruvate is the true entry molecule for the gluconeogenic pathway, so option b is also a genuine requirement.

Step 4: Turning pyruvate into alanine by transamination is the hallmark of the glucose-alanine (Cahill) cycle, a separate nitrogen-shuttling route. It actually pulls pyruvate out of the glucose-making line, so it is the step that is NOT needed here.

Transamination of pyruvate to alanine

Quick Tip: Cori cycle uses lactate to pyruvate to glucose; pyruvate to alanine is the glucose-alanine cycle.

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31. Reducing sugar in urine can be detected by?

- (A) Benedict's test
- (B) Fehling's solution
- (C) Glucose-oxidase test
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: The question lists three classic urine sugar tests and asks which can flag a reducing sugar. Reducing sugars donate electrons because of an exposed carbonyl group.

Step 2: Benedict's reagent is the standard screening tool; the sugar reduces copper and the tube turns green to brick red depending on how much sugar is present.

Step 3: Fehling's solution is an older copper based reagent that exploits the very same reduction chemistry, so it too signals a reducing sugar.

Step 4: The glucose-oxidase strip is enzyme based and specific for glucose. Because glucose itself is a reducing sugar, a positive strip also confirms reducing sugar in the urine. Every option is therefore valid.

All of the above

Quick Tip: Benedict, Fehling and glucose-oxidase can all pick up sugar in urine.

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32. Ketone body formation without glycosuria is seen in?

- (A) Diabetes mellitus
- (B) Diabetes insipidus
- (C) Starvation
- (D) Obesity

Correct Answer: (C) Starvation

SOLUTION:

Step 1: Two findings must coexist: ketone bodies present, but the urine free of glucose. We screen each option against that pair.

Step 2: Uncontrolled diabetes mellitus certainly makes ketones, however the high blood glucose overflows into urine, so glycosuria is the rule. That breaks the condition and rules out option a.

Step 3: Diabetes insipidus is purely an ADH or renal water-handling problem producing dilute polyuria; it neither drives ketosis nor causes glycosuria. Obesity by itself also fails to generate meaningful ketosis. Both are out.

Step 4: During prolonged fasting, insulin falls and fatty acids flood the liver to be turned into ketone bodies, while gluconeogenesis keeps blood sugar low to normal. Result: ketosis with Rothera positive but Benedict negative urine, exactly ketosis without glycosuria.

Starvation

Quick Tip: Starvation gives ketosis with low-normal glucose and no urine sugar; DM has glycosuria.

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33. Apolipoprotein E is rich in which amino acid?

- (A) Lysine
- (B) Arginine
- (C) Histidine
- (D) Methionine

Correct Answer: (B) Arginine

SOLUTION:

Step 1: The target molecule is apo-E, a key ligand on VLDL and chylomicron remnants that lets the liver clear them through the LDL and LRP receptors.

Step 2: A long standing nickname for apo-E is the arginine-rich apoprotein, because of the unusually high proportion of arginine residues in its sequence.

Step 3: Putting numbers to it, arginine contributes close to one tenth of all amino acids in the protein, and apo-E itself forms about 5 to 10 percent of VLDL protein in healthy individuals.

Step 4: By elimination, lysine, histidine and methionine do not characterise apo-E, so the basic, guanidinium-bearing arginine is the answer.

Arginine

Quick Tip: Apo-E is the arginine-rich apoprotein of VLDL.

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34. Ninhydrin test is used for the detection of?

- (A) Bile salts
- (B) Amino acids
- (C) Nucleic acid
- (D) Lipids

Correct Answer: (B) Amino acids

SOLUTION:

Step 1: Ninhydrin is a classic qualitative reagent, and the task is to recall what it lights up.

Step 2: When ninhydrin meets the free alpha-amino group of an alpha-amino acid, it strips the nitrogen and yields an intense blue-violet pigment, Ruhemann's purple. Imino acids like proline instead give a yellow shade.

Step 3: This makes ninhydrin the go-to spray for revealing amino acid spots after paper or thin layer chromatography, and it is even used to develop latent fingerprints owing to skin amino acids.

Step 4: The distractors each have their own chemistry: bile salts give the Pettenkofer reaction, nucleic acids respond to diphenylamine or orcinol, and lipids stain with Sudan dyes. So ninhydrin pins down amino acids.

Amino acids

Quick Tip: Ninhydrin gives Ruhemann's purple with the free alpha-amino group of amino acids.

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35. Sweaty feet odour in urine is seen in?

- (A) Phenylketonuria
- (B) Maple syrup urine disease
- (C) Isovaleric acidemia
- (D) Alkaptonuria

Correct Answer: (C) Isovaleric acidemia

SOLUTION:

Step 1: This is an odour-to-disease matching question among four metabolic disorders, so recall each signature smell.

Step 2: The sweaty feet or cheesy aroma is the textbook clue for isovaleric acidemia, where a block in leucine breakdown lets isovaleric acid build up. Glutaric aciduria type II shares this scent.

Step 3: Phenylketonuria smells mousy or musty from phenylacetic acid, and maple syrup urine disease smells of burnt sugar or maple syrup from branched chain keto acids. Neither fits sweaty feet.

Step 4: Alkaptonuria does not give a strong fresh smell; instead the urine turns black on standing as homogentisic acid oxidises. The only match for sweaty feet is isovaleric acidemia.

Isovaleric acidemia

Quick Tip: Sweaty feet odour points to isovaleric acidemia; mousy is PKU, maple syrup is MSUD.

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36. Okazaki fragments are formed during which process?

- (A) Transcription
- (B) Translation
- (C) DNA replication
- (D) None

Correct Answer: (C) DNA replication

SOLUTION:

Step 1: The key fact to recall is that Okazaki fragments belong to the lagging strand of DNA, so the event in question must be DNA copying, not RNA or protein making.

Step 2: Because the two DNA strands are antiparallel and the enzyme works only 5' to 3', one template strand is read smoothly (leading) while the other is read in short back-stitched segments (lagging). Those short segments carry the name Okazaki.

Step 3: Each fragment starts with an RNA primer laid by primase, is extended by DNA polymerase, and the pieces are finally sealed by ligase into one strand.

Step 4: Transcription and translation involve RNA and protein synthesis respectively and never produce these DNA segments, so option d is also excluded.

DNA replication

Quick Tip: Think about the discontinuous lagging strand of DNA.

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37. The chemical process involved in the conversion of progesterone to glucocorticoids is:

- (A) Methylation
- (B) Hydroxylation
- (C) Carboxylation
- (D) None

Correct Answer: (B) Hydroxylation

SOLUTION:

Step 1: Glucocorticoids like cortisol arise from progesterone through a series of adrenal cortex enzymatic modifications driven by P450 oxygenases.

Step 2: Each of these enzymes (17-alpha-hydroxylase, 21-hydroxylase, 11-beta-hydroxylase) inserts an oxygen atom as a hydroxyl group onto a specific carbon of the steroid nucleus. The cumulative addition of -OH groups defines the transformation.

Step 3: A reaction that introduces a hydroxyl group is by definition hydroxylation, making option b correct.

Step 4: No methyl group is added (ruling out methylation) and no carboxyl group is introduced (ruling out carboxylation), so the other choices fail.

Hydroxylation

Quick Tip: Adrenal P450 enzymes add -OH groups to the steroid ring.

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38. Glutathione requires which vitamin to act as an antioxidant?

- (A) Vitamin E
- (B) Niacin
- (C) Vitamin C
- (D) Vitamin A

Correct Answer: (B) Niacin

SOLUTION:

Step 1: The antioxidant role of glutathione depends not on a single use but on its continuous recycling between reduced and oxidised forms.

Step 2: When GSH scavenges peroxides via glutathione peroxidase it is spent into GSSG. Glutathione reductase restores the reduced pool, and the hydrogen needed for this reduction comes from NADPH.

Step 3: NADPH is the phosphorylated nicotinamide nucleotide whose vitamin precursor is niacin. Therefore niacin underpins the entire regeneration loop that lets glutathione keep acting as an antioxidant.

Step 4: Although vitamin C and vitamin E are standalone antioxidants, neither feeds the glutathione reductase reaction, and vitamin A has no part here, so option b is the right choice.

Niacin

Quick Tip: Glutathione reductase needs NADPH, which is built from this B vitamin.

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39. During starvation, muscle primarily uses which fuel?

- (A) Fatty acids
- (B) Ketone bodies
- (C) Glucose
- (D) Proteins

Correct Answer: (A) Fatty acids

SOLUTION:

Step 1: The metabolic logic of starvation is to protect glucose for glucose-dependent tissues and to burn stored fat everywhere else.

Step 2: Lipolysis floods the plasma with free fatty acids. Muscle, having abundant mitochondria, oxidises these fatty acids efficiently to meet its energy demand.

Step 3: Because muscle preferentially oxidises fatty acids, it stops consuming glucose, keeping circulating glucose available for the brain. This makes fatty acids the chief muscle fuel.

Step 4: Ketone use by muscle wanes as fasting deepens, glucose uptake is deliberately reduced, and proteolysis is spared to protect muscle bulk, so options b, c and d do not represent the main fuel.

Fatty acids

Quick Tip: Muscle burns fat to spare glucose for the brain.

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40. All are true about chaperones except:

- (A) Cause folding of proteins
- (B) Are lipid in nature
- (C) May have ATPase activity
- (D) Include heat shock proteins

Correct Answer: (B) Are lipid in nature

SOLUTION:

Step 1: To find the exception, recall the basic identity of chaperones: they are a class of proteins, found across species from bacteria to humans, dedicated to quality control of protein folding.

Step 2: Being proteins, they cannot be lipid in nature. This directly marks option b as the incorrect statement.

Step 3: The remaining statements are accurate. Chaperones bind hydrophobic patches of incompletely folded proteins to promote correct folding and block aggregation, and they carry out an editing or quality-control role.

Step 4: Their function is powered by ATP, so they show ATPase activity, and a large subset are the inducible heat shock proteins. Thus a, c and d are true while b is the false one.

Are lipid in nature

Quick Tip: Chaperones are proteins, not lipids.

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41. Amyloidosis occurs in all of the following except:

- (A) Tuberculosis
- (B) Chronic bronchitis
- (C) Osteomyelitis
- (D) Bronchiectasis

Correct Answer: (B) Chronic bronchitis

SOLUTION:

Step 1: The question targets secondary amyloidosis, which is fuelled by long-standing inflammation or chronic suppuration that drives the acute-phase reactant serum amyloid A.

Step 2: Conditions with persistent tissue destruction and inflammation predispose to it: tuberculosis and leprosy among infections, chronic osteomyelitis as a bony suppurative focus, and bronchiectasis as a chronic suppurative airway disease, alongside rheumatoid arthritis and IBD.

Step 3: Matching the options, tuberculosis, osteomyelitis and bronchiectasis each fit the profile of established amyloidosis triggers.

Step 4: Chronic bronchitis does not feature in this list of recognised causes, so it

stands out as the exception.

Chronic bronchitis

Quick Tip: Look for the chronic disease that is not a classic suppurative or granulomatous trigger.

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42. An example of apoptosis is:

- (A) Councilman bodies
- (B) Gamna Gandy body
- (C) Russell bodies
- (D) None

Correct Answer: (A) Councilman bodies

SOLUTION:

Step 1: The defining morphologic signature of apoptosis is the eosinophilic apoptotic body formed when a single cell shrinks and fragments after chromatin margination and surface blebbing.

Step 2: In the liver, such apoptotic hepatocytes are named Councilman bodies and are typically found in acute viral hepatitis, directly matching the concept of apoptosis.

Step 3: Gamna Gandy bodies are siderotic fibrocalcific nodules of an old splenic bleed and have nothing to do with single-cell programmed death.

Step 4: Russell bodies are intracytoplasmic immunoglobulin globules in plasma cells, again unrelated to apoptosis. Therefore Councilman bodies are the right answer.

Quick Tip: Think of the apoptotic hepatocyte seen in acute viral hepatitis.

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43. Syphilitic aneurysm most commonly involves which part of the aorta?

- (A) Arch of aorta
- (B) Descending aorta
- (C) Abdominal aorta above the renal arteries
- (D) Abdominal aorta below the renal arteries

Correct Answer: (A) Arch of aorta

SOLUTION:

Step 1: Recall the pathogenesis. In late-stage syphilis, spirochaetes trigger an obliterative endarteritis of the vasa vasorum. Loss of blood supply to the medial layer produces patchy medial necrosis and scarring, classically described as tree-bark wrinkling of the intima.

Step 2: Sites with the most elastic media and the densest vasa vasorum are hit hardest, and that is the thoracic aorta. The proximal thoracic segments bear the brunt: ascending aorta first, arch next, then descending thoracic aorta.

Step 3: Map this onto the choices. Descending aorta is a thoracic site but far less common than the arch. The two abdominal options point toward atherosclerotic disease rather than a luetic process, so they can be excluded.

Step 4: The single best thoracic answer offered is the arch of the aorta.

Arch of aorta

Quick Tip: Think thoracic aorta, the elastic segment fed by vasa vasorum hit by endarteritis.

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44. Increased vascular permeability in acute inflammation is mainly due to which mediator?

- (A) Histamine
- (B) IL-2
- (C) TGF-beta
- (D) FGF

Correct Answer: (A) Histamine

SOLUTION:

Step 1: The question asks what opens up the vessel wall early in acute inflammation. The leakiness comes mostly from venular endothelial cells contracting and pulling apart, leaving interendothelial gaps within minutes of injury.

Step 2: Identify the agent that triggers this contraction fastest. Histamine, stored preformed in mast cell granules, is liberated almost instantly on stimulation and binds H1 receptors on venular endothelium to cause the immediate transient leak. Bradykinin and leukotrienes assist, while IL-1, TNF and IFN-gamma act in a somewhat delayed, longer-lasting fashion.

Step 3: Eliminate the others. IL-2 belongs to lymphocyte activation, TGF-beta drives fibrosis and dampens inflammation, and FGF stimulates new vessel and fibroblast growth during healing. None produce the early permeability spike.

Step 4: The preformed, rapid-acting mediator is therefore histamine.

Histamine

Quick Tip: Which preformed mast-cell mediator causes the immediate transient venular leak?

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45. Which cytokine activates macrophages?

- (A) IL-8
- (B) IFN-gamma
- (C) PAF
- (D) Leukotriene B4

Correct Answer: (B) IFN-gamma

SOLUTION:

Step 1: Frame the answer around macrophage polarisation. The M1 (classical) phenotype is the killer, inflammatory state, whereas the M2 (alternative) phenotype, driven by IL-4 and IL-13, favours repair and produces IL-10 and TGF-beta.

Step 2: The signature signal that pushes macrophages into the aggressive M1 state is IFN-gamma, the hallmark cytokine of Th1 cells and NK cells. With microbial triggers it boosts oxygen radicals, nitric oxide and IL-12 secretion, sharpening killing power.

Step 3: Test each wrong choice against this. IL-8 simply calls in neutrophils. PAF acts on vessels and platelets. Leukotriene B4 is again a neutrophil chemoattractant. None of them flip the macrophage activation switch.

Step 4: The macrophage-activating cytokine is therefore IFN-gamma.

IFN-gamma

Quick Tip: Which Th1/NK-cell cytokine drives classical (M1) macrophage activation?

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46. What is the chance of a child having cystic fibrosis if one parent is affected and the other parent is a carrier?

- (A) 25%
- (B) 50%
- (C) 70%
- (D) 80%

Correct Answer: (B) 50%

SOLUTION:

Step 1: Treat this as a simple Mendelian cross. Cystic fibrosis needs two defective CFTR copies, so disease genotype is homozygous recessive (aa), while a single defective copy (Aa) is a silent carrier.

Step 2: Set up the parents. Affected parent = aa, contributing only an a gamete. Carrier parent = Aa, contributing A or a in a 1:1 ratio.

Step 3: Combine the gametes. Half the children get a + A = Aa (carrier, healthy) and half get a + a = aa (cystic fibrosis). That is a 50:50 split.

Step 4: So one in two children, or 50 percent, will be affected when one parent has the disease and the other is a carrier.

50%

Quick Tip: Cross an affected (aa) parent with a carrier (Aa) parent and count the aa offspring.

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47. What is the terminal (final) stage of lobar pneumonia?

- (A) Congestion
- (B) Red hepatization
- (C) Gray hepatization
- (D) Resolution

Correct Answer: (D) Resolution

SOLUTION:

Step 1: Remember the ordered sequence of lobar pneumonia in time: it begins with congestion, advances through two hepatization (liver-like) phases, and then heals.

Step 2: Red hepatization gives a red, firm, fibrin and red-cell laden lobe, and gray hepatization follows with a dry grayish lobe as red cells break down and macrophages move in. These are the consolidation phases sitting in the middle of the course.

Step 3: The closing phase is resolution, where enzymes digest the exudate, macrophages clear the debris, and the alveoli re-aerate to normal lung. Being the last step in the timeline, it is the terminal stage.

Step 4: Since the question wants the last stage, the answer is resolution.

Resolution

Quick Tip: After the two hepatization stages, what restores normal aerated lung?

48. Michaelis-Gutmann bodies are seen in which condition?

- (A) Xanthogranulomatous pyelonephritis
- (B) Pyelonephritis
- (C) Malakoplakia
- (D) Nail patella syndrome

Correct Answer: (C) Malakoplakia

SOLUTION:

Step 1: Anchor on the buzzword. Targetoid, laminated, calcified inclusions known as Michaelis-Gutmann bodies are pathognomonic for one entity: malakoplakia.

Step 2: Understand the lesion. Malakoplakia is a defective-macrophage disorder seen mainly in the urinary bladder, driven by persistent coliform infection. The macrophages fail to fully digest bacteria, so undigested material accumulates and mineralises inside enlarged phagolysosomes.

Step 3: Those mineralised concretions are the Michaelis-Gutmann bodies. They take up calcium stains (von Kossa) and iron stains (Perls), are PAS positive and diastase resistant, and sit both inside and between the foamy von Hanseman macrophages, often immunopositive for CD68.

Step 4: Neither xanthogranulomatous pyelonephritis, ordinary pyelonephritis, nor nail-patella syndrome features these bodies, so the diagnosis is malakoplakia.

Malakoplakia

Quick Tip: Laminated calcified bodies in defective bladder macrophages point to which lesion?

49. All of the following immunohistochemical markers are positive in the neoplastic cells of granulocytic sarcoma, except:

- (A) CD45 RO
- (B) CD43
- (C) Myeloperoxidase
- (D) Lysozyme

Correct Answer: (A) CD45 RO

SOLUTION:

Step 1: Identify the tumour. A chloroma (granulocytic sarcoma, myeloblastoma) is a tissue mass of leukaemic myeloblasts seen outside the marrow, typically in AML with monocytic features. The classic green colour comes from myeloperoxidase in the blasts.

Step 2: Predict its immunophenotype from lineage. Being myeloid, the cells light up for myeloid and histiocytic markers: myeloperoxidase, lysozyme, CD43, plus CD68, CD117 and CD34. Three of the four options listed (CD43, myeloperoxidase, lysozyme) fall squarely in this myeloid panel.

Step 3: Spot the odd one out. CD45 RO is a T-lymphocyte associated isoform, used to mark T cells, not myeloid blasts. It does not belong to the granulocytic sarcoma profile.

Step 4: The question asks which marker is NOT positive, so the exception is CD45 RO.

CD45 RO

Quick Tip: Three options are myeloid markers; which one is a T-cell marker?

50. Donath-Landsteiner antibody is seen in?

- (A) PNH
- (B) Waldenstrom's macroglobulinemia
- (C) Paroxysmal cold hemoglobinuria
- (D) Malaria

Correct Answer: (C) Paroxysmal cold hemoglobinuria

SOLUTION:

Step 1: Recall what the Donath-Landsteiner (D-L) test detects. It is a cold-warm biphasic hemolysin of the IgG class, and finding it confirms paroxysmal cold hemoglobinuria.

Step 2: Mechanism - the IgG attaches to the P blood-group antigen on erythrocytes at low temperature, then on warming to body temperature it triggers the full complement cascade, ending in massive intravascular hemolysis with hemoglobin spilling into the urine.

Step 3: Clinical associations include syphilis as well as viral and atypical infections such as mycoplasma, mumps, measles and influenza-like illness, which is why a cold-induced hemoglobinuria after infection points to PCH.

Step 4: Eliminate distractors - PNH lacks GPI-anchored complement inhibitors (no antibody), Waldenstrom secretes IgM, and malaria lyses cells through intra-erythrocytic parasites.

Paroxysmal cold hemoglobinuria

Quick Tip: Biphasic IgG against the P-antigen, active in the cold.

51. Multiple epidermoid cysts are seen in?

- (A) Turcot's syndrome
- (B) Gardner's syndrome
- (C) Peutz-Jeghers syndrome
- (D) Familial polyposis coli

Correct Answer: (B) Gardner's syndrome

SOLUTION:

Step 1: The question keys on which polyposis syndrome carries cutaneous cysts. The answer is Gardner syndrome, an FAP subtype with conspicuous soft-tissue and bony lesions outside the gut.

Step 2: Remember the triad-plus of Gardner - bone (osteomas), connective tissue (desmoids, lipomas) and skin (epidermoid cysts), riding on top of the underlying adenomatous colonic polyps that carry near-certain malignant risk.

Step 3: Rule out the rest - Turcot pairs polyps with brain tumors, Peutz-Jeghers gives hamartomas plus lip and buccal pigment spots, and plain familial polyposis coli has no extra-colonic skin findings.

Gardner's syndrome

Quick Tip: FAP variant with osteomas, desmoids and skin cysts.

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52. Perifascicular atrophy of muscle fibres is seen in?

- (A) Steroid myopathy
- (B) Dermatomyositis
- (C) Inclusion body myositis
- (D) Nemaline myopathy

Correct Answer: (B) Dermatomyositis

SOLUTION:

Step 1: The phrase perifascicular atrophy maps directly to dermatomyositis. Atrophy concentrated at the rim of each fascicle is the signature histologic clue.

Step 2: Pathophysiology - antibody and complement deposition injures the intramuscular microvasculature, and because perfusion is poorest at the fascicular border, the outermost myofibres shrink first. A perivascular mixed lymphocytic infiltrate accompanies this, and anti-Jo-1 may be positive in the antisynthetase form.

Step 3: Discard the others - steroid myopathy selectively wastes type II fibres, inclusion body myositis produces rimmed vacuoles, and nemaline myopathy produces rod-shaped inclusions.

Dermatomyositis

Quick Tip: Capillary microangiopathy wastes the fibres at the fascicle edge.

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53. Flexner-Wintersteiner rosette is seen in?

- (A) Hepatoblastoma
- (B) Nephroblastoma
- (C) Neuroblastoma
- (D) Retinoblastoma

Correct Answer: (D) Retinoblastoma

SOLUTION:

Step 1: Match the rosette type to its tumor. A Flexner-Wintersteiner rosette signals retinoblastoma.

Step 2: Identify it histologically - tumor cells encircle a true, virtually empty lumen, and thin cytoplasmic extensions reach inward toward that lumen, mimicking primitive photoreceptors. The same rosette can appear in other primitive neuroectodermal lesions like medulloblastoma and pineoblastoma.

Step 3: Contrast with Homer-Wright rosettes, where the centre is filled with fibrillary neuropil and which typify neuroblastoma and medulloblastoma. Wilms tumor and hepatoblastoma do not form this rosette, so they are excluded.

Retinoblastoma

Quick Tip: Cells around an empty lumen with cytoplasmic projections - retinal tumor.

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54. Elimination after 4 half lives in first order kinetics is?

- (A) 84%
- (B) 93%
- (C) 80.5%
- (D) 4.75%

Correct Answer: (B) 93%

SOLUTION:

Step 1: First order elimination means the remaining quantity is halved with every passing half life, a simple geometric decay.

Step 2: Compute the leftover fraction after $n = 4$ half lives using

$$\text{fraction remaining} = \left(\frac{1}{2}\right)^4 = \frac{1}{16} = 6.25\%.$$

Step 3: The fraction cleared is the complement, $100\% - 6.25\% = 93.75\%$, matching the option closest to 93 percent.

93%

Quick Tip: Remaining is $(1/2)$ raised to the number of half lives.

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55. Type E adverse reaction is?

- (A) Toxicity
- (B) Augmented effect
- (C) Teratogenesis
- (D) Withdrawal reaction

Correct Answer: (D) Withdrawal reaction

SOLUTION:

Step 1: Use the alphabet mnemonic for adverse reactions - A Augmented, B Bizarre, C Chronic, D Delayed, E End of use. Type E therefore equals withdrawal phenomena.

Step 2: The prototype is clonidine, whose sudden discontinuation triggers a sympathetic rebound and hypertensive surge, the textbook Type E event.

Step 3: Sort the distractors - augmented (predictable, dose-linked) is Type A, teratogenesis sits in the Delayed Type D group, and general toxicity is again a

Type A excess effect, leaving withdrawal as the only Type E answer.

Withdrawal reaction

Quick Tip: E for End of use - reaction on stopping the drug.

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56. Besides its property of decreasing intraocular pressure, timolol is preferred in the treatment of glaucoma because it?

- (A) Produces no miosis
- (B) Possesses membrane stabilizing activity
- (C) Increases outflow of aqueous humor
- (D) Is a selective beta-adrenoceptor blocker

Correct Answer: (A) Produces no miosis

SOLUTION:

Step 1: Timolol controls glaucoma by suppressing aqueous secretion at the ciliary epithelium through beta blockade, thereby cutting intraocular pressure.

Step 2: The question asks for its extra clinical edge over miotics like pilocarpine. Because it acts on secretion rather than on the iris muscle, it leaves the pupil unchanged - no miosis. That spares the patient pupillary fluctuation, drug-induced myopia and painful ciliary spasm, with simpler once or twice daily dosing.

Step 3: Reject the others - it lowers production rather than boosting outflow, it is non-selective rather than beta-1 selective, and its membrane-stabilizing activity is incidental and not the reason for preference.

Produces no miosis

Quick Tip: Unlike pilocarpine it leaves the pupil unchanged.

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57. Which of the following is true about calcium channel blockers?

- (A) Verapamil causes reflex tachycardia
- (B) Diltiazem causes reflex tachycardia
- (C) Nifedipine causes reflex tachycardia
- (D) Nifedipine has a longer $t_{1/2}$ than felodipine

Correct Answer: (C) Nifedipine causes reflex tachycardia

SOLUTION:

Step 1: Think about how each agent influences heart rate through its site of action. The reflex tachycardia answer depends on which drug is the purest vasodilator with no direct cardiac slowing.

Step 2: Nifedipine, being a dihydropyridine, acts almost entirely on peripheral arterioles. The sudden vasodilation and pressure drop are sensed by carotid and aortic baroreceptors, which fire off a compensatory sympathetic surge that speeds up the heart. Hence nifedipine is classically linked with reflex tachycardia.

Step 3: By contrast, verapamil and diltiazem suppress conduction at the AV node and slow the sinus node directly. Any reflex sympathetic drive is offset by this direct cardiac depression, so they do not show reflex tachycardia, eliminating choices (a) and (b).

Step 4: Regarding pharmacokinetics, felodipine is the more vascular-selective, widely distributed agent with the longer elimination half-life. Therefore the claim that nifedipine outlasts felodipine is false, eliminating (d).

Nifedipine causes reflex tachycardia

Quick Tip: Pure arteriolar dilators trigger the baroreflex; rate-controlling CCBs do not.

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58. Which second generation antihistaminic does NOT produce an active metabolite?

- (A) Loratadine
- (B) Terfenadine
- (C) Cetirizine
- (D) None

Correct Answer: (C) Cetirizine

SOLUTION:

Step 1: The trick is to recall which low-sedating antihistamines are essentially their own end-product and which depend on hepatic conversion for their effect.

Step 2: Terfenadine is a classic prodrug whose activity comes from fexofenadine formed in the liver, and loratadine relies heavily on desloratadine for its long action. Each of these therefore creates an active metabolite, ruling out (a) and (b).

Step 3: Cetirizine stands apart because it is already the active acid derivative of hydroxyzine and undergoes minimal further metabolism. It clears largely unchanged in the urine, so no fresh active metabolite is produced.

Step 4: Since cetirizine clearly satisfies the requirement, the answer cannot be None, eliminating (d).

Cetirizine

Quick Tip: It is the active metabolite of hydroxyzine and is not converted further.

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59. Thiazide diuretics act on which part of the nephron?

- (A) Proximal convoluted tubule (PCT)
- (B) Distal convoluted tubule (DCT)
- (C) Glomerulus
- (D) Descending limb of the loop of Henle

Correct Answer: (B) Distal convoluted tubule (DCT)

SOLUTION:

Step 1: Map each diuretic class onto the nephron segment whose transporter it inhibits, then locate the one tied to thiazides.

Step 2: The early distal tubule, also called the cortical diluting segment, reabsorbs sodium and chloride together through an electroneutral Na-Cl cotransporter. Thiazides selectively block this carrier, so the answer is the distal convoluted tubule.

Step 3: The proximal tubule handles bulk isotonic reabsorption and is the domain of acetazolamide, while the thick ascending limb with its Na-K-2Cl carrier is blocked by furosemide. Neither is the thiazide site, eliminating (a).

Step 4: The glomerulus only filters plasma and offers no transporter to block, and the descending limb mainly moves water rather than salt, so neither (c) nor (d) can be correct.

Distal convoluted tubule (DCT)

Quick Tip: Thiazides block the Na-Cl symporter in the early distal tubule.



60. Which of the following is true about lamotrigine?

- (A) Decreased efficacy in depression
- (B) First choice in absence seizure
- (C) $t_{1/2}$ is 24 hours
- (D) Not metabolised in liver

Correct Answer: (C) $t_{1/2}$ is 24 hours

SOLUTION:

Step 1: Evaluate each claim against the known clinical profile of lamotrigine, then keep the only one that holds up.

Step 2: Its pharmacokinetics give a half-life in the region of one day, which supports convenient dosing. That fact matches the 24 hour statement, so option (c) is sound.

Step 3: On efficacy in mood disorders, lamotrigine is well regarded for the depressive phase of bipolar illness, so saying it has reduced effect in depression is incorrect, eliminating (a).

Step 4: Ethosuximide and valproate dominate absence seizure therapy, leaving lamotrigine as a backup rather than first line, so (b) fails. Hepatic glucuronidation is its main clearance route, so the claim of no liver metabolism in (d) is also false.

$t_{1/2}$ is about 24 hours

Quick Tip: Once-daily dosing reflects a roughly 24 hour half-life; it is not first line for absence.



61. Anandamide is which type of substance?

- (A) Opioid
- (B) CK 1 antagonist
- (C) D2 blocker
- (D) Cannabinoid neurotransmitter

Correct Answer: (D) Cannabinoid neurotransmitter

SOLUTION:

Step 1: Recognise anandamide as one of the body's own signalling lipids rather than a manufactured drug, and place it in the right receptor family.

Step 2: The molecule binds the same cannabinoid receptors targeted by tetrahydrocannabinol, which is exactly why it is called the bliss molecule. That places it firmly in the cannabinoid category, confirming option (d).

Step 3: Its action is limited because the enzyme fatty acid amide hydrolase rapidly breaks it down, and blocking that enzyme to raise anandamide levels is an active area of drug research.

Step 4: It has no relationship to opioid receptors, casein kinase inhibition or dopamine receptor blockade, so choices (a), (b) and (c) are all irrelevant.

Cannabinoid neurotransmitter

Quick Tip: The bliss molecule that acts on cannabinoid receptors and is broken down by FAAH.

• • •

62. Metformin is used in the treatment and control of which condition(s)?

- (A) Diabetes
- (B) Polycystic ovarian disease (PCOD)
- (C) Pregnancy induced hypertension
- (D) Both a and b

Correct Answer: (D) Both a and b

SOLUTION:

Step 1: Trace metformin's core mechanism, lowering insulin resistance, and see which listed conditions share that pathophysiology.

Step 2: In type 2 diabetes it curbs liver glucose output and improves peripheral glucose handling, making it the first line agent. That secures option (a).

Step 3: Polycystic ovarian disease is driven by insulin resistance and compensatory high insulin, which disturbs ovarian function. By easing that resistance, metformin helps restore cycles and ovulation, so option (b) is equally valid.

Step 4: Pregnancy induced hypertension is managed with antihypertensives such as labetalol or methyldopa, not metformin, so (c) does not fit. With two correct indications established, the inclusive choice is the answer.

Both diabetes and PCOD

Quick Tip: An insulin-sensitiser used both in type 2 diabetes and in PCOD.

• • •

63. Which of the following drugs reduces the efficacy of oral contraceptives?

- (A) Erythromycin
- (B) Griseofulvin
- (C) Cimetidine
- (D) Disulfiram

Correct Answer: (B) Griseofulvin

SOLUTION:

Step 1: The question reduces to identifying the one drug that ramps up liver metabolism, since faster steroid clearance is what undermines the pill.

Step 2: Griseofulvin is a well known inducer of hepatic microsomal enzymes. Greater enzyme activity means estrogen and progesterone are degraded more quickly, dropping their levels below the threshold needed for reliable contraception. That is why it can lead to breakthrough ovulation and pregnancy, confirming option (b).

Step 3: The other choices behave oppositely or are unrelated. Erythromycin and cimetidine inhibit cytochrome enzymes, which slows steroid breakdown rather than speeding it. Disulfiram blocks aldehyde dehydrogenase and has no enzyme-inducing effect on the pill.

Step 4: Only an inducer threatens contraceptive cover, so the inhibitors and disulfiram are eliminated.

Griseofulvin

Quick Tip: Look for the hepatic enzyme inducer that speeds steroid metabolism.

• • •

64. Which drug binds bile acids in the intestine and prevents their return to the liver via the enterohepatic circulation?

- (A) Niacin
- (B) Fenofibrate
- (C) Cholestyramine
- (D) Gugulipid

Correct Answer: (C) Cholestyramine

SOLUTION:

Step 1: Bile acids made in the liver are normally secreted into the gut, reabsorbed from the ileum, and recycled back to the liver. This recycling loop is the enterohepatic circulation.

Step 2: To block the loop you need a substance that traps bile acids before they can be reabsorbed. Cholestyramine is a positively charged resin that is not absorbed itself; it grabs the anionic bile acids and carries them out in the stool.

Step 3: With less bile acid coming back, the liver must use up stored cholesterol to manufacture replacement bile acids. The resulting rise in hepatic LDL receptor activity clears circulating LDL, which is the therapeutic goal.

Step 4: Comparing the choices, only the resin works inside the intestinal lumen. Niacin, fenofibrate, and gugulipid all act on systemic lipid metabolism rather than physically binding bile salts. Hence the bile acid sequestrant is the right pick.

Cholestyramine

Quick Tip: Think of the non-absorbable resin that traps bile salts in the gut.



65. Which of the following anticoagulants is given orally?

- (A) Argatroban
- (B) Alteplase
- (C) Rivaroxaban
- (D) Fondaparinux

Correct Answer: (C) Rivaroxaban

SOLUTION:

Step 1: Sort the four drugs by how they are administered. Three of them must be injected, and only one can be swallowed.

Step 2: Rivaroxaban belongs to the oral direct factor Xa inhibitor family. Being a small, well absorbed molecule, it is taken as a tablet for DVT, pulmonary embolism, and atrial fibrillation, making it the answer.

Step 3: Alteplase is a clot dissolving enzyme that must run as an IV infusion since it is degraded within minutes. Argatroban, a thrombin blocker reserved for heparin induced thrombocytopenia, is also infused intravenously.

Step 4: Fondaparinux is delivered as a subcutaneous injection. Therefore the single orally effective option is Rivaroxaban.

Rivaroxaban

Quick Tip: Look for the oral DOAC that blocks factor Xa.

• • •

66. Raltegravir can cause which of the following?

- (A) Hypokalemia
- (B) Hypocalcemia
- (C) Hyperkalemia
- (D) Hypercalcemia

Correct Answer: (C) Hyperkalemia

SOLUTION:

Step 1: Begin from the toxicity profile of raltegravir, the integrase inhibitor used in HIV therapy. A well known but serious effect is muscle injury that can progress to rhabdomyolysis.

Step 2: Rhabdomyolysis means skeletal muscle cells are breaking apart. Potassium is the dominant cation stored inside cells, so when muscle membranes rupture, potassium floods into the circulation.

Step 3: The net laboratory result of this potassium leak is a high serum potassium level, that is hyperkalemia, which can be dangerous for cardiac rhythm.

Step 4: The remaining options point the wrong way. A drop in potassium or a rise in calcium would not arise from muscle destruction, and any calcium change in rhabdomyolysis is typically a fall, not a rise. So the answer derived through the rhabdomyolysis pathway is hyperkalemia.

Hyperkalemia

Quick Tip: Trace the effect through raltegravir induced rhabdomyolysis.



67. Which one of the following statements is FALSE regarding vincristine?

- (A) It is an alkaloid
- (B) Its use is associated with neurotoxicity
- (C) It does not cause alopecia
- (D) It is a useful drug for induction of remission in acute lymphoblastic leukaemia

Correct Answer: (C) It does not cause alopecia

SOLUTION:

Step 1: Read the question as a find the wrong option task. Three statements will be accurate and one will be a misstatement about vincristine.

Step 2: Vincristine is genuinely a vinca alkaloid obtained from a plant, confirming option a. It is also a backbone drug for remission induction in paediatric acute lymphoblastic leukaemia, confirming option d.

Step 3: Neurotoxicity in the form of peripheral neuropathy is the signature dose limiting toxicity of vincristine, so option b is correct as written.

Step 4: That leaves option c, which says alopecia does not occur. Vincristine actually does cause hair loss, so the claim is incorrect, and the false statement is the answer.

It does not cause alopecia

Quick Tip: Pick the wrong claim; vincristine actually does cause hair loss.

• • •

68. Which of the following is NOT a hepatotoxic drug?

- (A) Chlorpropamide
- (B) Allopurinol
- (C) Streptomycin
- (D) Halothane

Correct Answer: (C) Streptomycin

SOLUTION:

Step 1: Identify the outlier whose toxicity does not involve the liver. Three options have a known hepatotoxic reputation.

Step 2: Halothane is famous for immune mediated halothane hepatitis. Chlorpropamide, an older sulfonylurea, can trigger cholestatic liver injury, and allopurinol can cause a severe hypersensitivity reaction that includes hepatitis.

Step 3: Streptomycin sits in a different toxicity bracket. As an aminoglycoside, its hallmark adverse effects are damage to the inner ear and to the kidneys.

Step 4: Since the liver is not the target organ for streptomycin toxicity, it is the drug that is not hepatotoxic.

Streptomycin

Quick Tip: One of these is an oto and nephrotoxic aminoglycoside, not a liver toxin.

• • •

69. IPC Section 197 is related to:

- (A) Causing disappearance of evidence
- (B) Issuing false certificate by a doctor
- (C) Giving false evidence
- (D) b and c both

Correct Answer: (B) Issuing false certificate by a doctor

SOLUTION:

Step 1: Recall the cluster of IPC sections that a forensic medicine student links with medical practice and certificates.

Step 2: Section 197 of the IPC punishes a person who issues or signs a certificate that he knows or believes to be false in a material point. Applied to a physician, this is the act of giving a false medical certificate, matching option b.

Step 3: The other acts belong elsewhere. Destroying or hiding evidence is dealt with under Section 201, and giving false evidence on oath is covered by Sections 191 to 193.

Step 4: Because only the false certificate definition fits Section 197, the composite choice combining false certificate and false evidence is incorrect. The right answer is issuing a false certificate by a doctor.

Issuing false certificate by a doctor

Quick Tip: IPC 197 is the false certificate section.

• • •

70. A Class I judicial magistrate has the power to give a punishment of:

- (A) 5 years, Rs. 3000
- (B) 3 years, Rs. 5000
- (C) 5 years, Rs. 5000
- (D) 3 years, Rs. 3000

Correct Answer: (B) 3 years, Rs. 5000

SOLUTION:

Step 1: Use the hierarchy of magistrate sentencing limits given under Section 29 of the CrPC to answer this.

Step 2: At the top, the Chief Judicial Magistrate may impose up to 7 years of imprisonment with any fine, short of death or life imprisonment.

Step 3: The First Class Judicial Magistrate ranks below that, with a ceiling of 3 years imprisonment and a maximum fine of Rs. 5000.

Step 4: The Second Class Judicial Magistrate is limited to 1 year and Rs. 1000. Matching the Class I figures, the correct pairing is 3 years and Rs. 5000.

3 years, Rs. 5000

Quick Tip: Recall Section 29 CrPC limits for a First Class magistrate.

• • •

71. The first fingerprint bureau of the world was first established in which country?

- (A) England
- (B) China
- (C) India
- (D) Singapore

Correct Answer: (C) India

SOLUTION:

Step 1: The question tests where the world's first fingerprint bureau came into existence. Although early pioneers like William Herschel and Francis Galton worked in other parts of the world, the institutional bureau itself was first set up in Calcutta.

Step 2: This Calcutta bureau, housed in the Writers' Building, places India as the birthplace of the first dedicated fingerprint identification office.

Step 3: Fingerprinting holds top rank among identification methods because ridge patterns are permanent and individually unique; dental records rank second.

Step 4: Thus England, China, and Singapore can be ruled out.

India

Quick Tip: Think of the Writers' Building in Calcutta, where the world's first such bureau was set up.

• • •

72. The ideal site to record the body temperature in a dead body is?

- (A) Rectum
- (B) Axilla
- (C) Mouth
- (D) Groin

Correct Answer: (A) Rectum

SOLUTION:

Step 1: Estimating time since death from body cooling needs a reading that mirrors the internal core, not a surface zone affected by the environment.

Step 2: The rectum satisfies this requirement best; the thermometer goes in roughly 8 to 10 cm and is left for about 2 minutes for an accurate deep reading.

Step 3: Alternative deep sites occasionally used are the nostril, ear canal, vagina, and the area beneath the liver.

Step 4: Mouth, axilla, and groin are too superficial and prone to environmental error, so they are discarded.

Rectum

Quick Tip: Choose the deepest, most environment-shielded site, accessed by inserting a thermometer 8 to 10 cm.

• • •

73. A graze is a type of?

- (A) Bruise
- (B) Contusion
- (C) Laceration
- (D) Abrasion

Correct Answer: (D) Abrasion

SOLUTION:

Step 1: The term graze refers to a scrape of the outer skin, which immediately points toward the family of superficial mechanical injuries called abrasions.

Step 2: Abrasions damage only the epidermal surface, and grazes are the commonest variety, arising when the skin slides across a coarse surface.

Step 3: By contrast, a bruise (contusion) is a deep collection of leaked blood with intact skin, and a laceration is a split or tear of skin from blunt trauma reaching deeper tissues.

Step 4: Since a graze is a sliding superficial scrape, it belongs squarely under abrasion.

Abrasion

Quick Tip: A graze is a sliding scrape of only the superficial skin layer.

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74. Choking of the respiratory passage by a bolus of food is known as?

- (A) Gagging
- (B) Overlying
- (C) Cafe coronary
- (D) Burking

Correct Answer: (C) Cafe coronary

SOLUTION:

Step 1: A person suddenly collapsing while eating, where a chunk of food jams the laryngeal opening, describes a classic clinical entity.

Step 2: That entity is cafe coronary, so named because the abrupt death during a meal resembles a coronary attack, although the real mechanism is airway obstruction and asphyxia.

Step 3: The distractors describe different mechanisms: gagging blocks the mouth with a gag, overlying is an adult accidentally smothering an infant, and burking pairs smothering with chest compression.

Step 4: A food bolus choking the airway is therefore best labelled cafe coronary.

Cafe coronary

Quick Tip: Sudden collapse while eating that mimics a heart attack but is actually airway blockage by food.

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75. Immersion syndrome is also called as?

- (A) Hydrocution
- (B) Wet drowning
- (C) Dry drowning
- (D) Secondary drowning

Correct Answer: (A) Hydrocution

SOLUTION:

Step 1: The key feature of immersion syndrome is instant death from a reflex cardiac arrest the moment the body hits the water, mediated by the vagus nerve.

Step 2: Because the heart stops via this vagal reflex rather than the lungs filling with water, the condition carries the alternate names hydrocution, submersion inhibition, and vagal inhibition. Triggers include sudden cold-water contact, feet-first duck diving, and epigastric impact.

Step 3: Wet drowning (water in lungs with froth) and dry drowning (laryngospasm-driven asphyxia) involve the respiratory tract, not a vagal cardiac arrest, so they are excluded.

Step 4: Secondary drowning is a late death after rescue, again distinct from the immediate reflex death of immersion syndrome.

Hydrocution

Quick Tip: Instant reflex cardiac death on hitting water from vagal inhibition has this single-word synonym.

• • •

76. The term Quoad Hanc means?

- (A) Passive partner in sexual intercourse
- (B) Woman having high sexual desire
- (C) Sexual partner in pedophilia
- (D) Male impotent to a particular woman

Correct Answer: (D) Male impotent to a particular woman

SOLUTION:

Step 1: Male impotence can be absolute (toward every partner) or selective (toward one specific partner), and forensic medicine has Latin labels for the selective forms.

Step 2: Quoad Hanc literally points to one particular woman: it denotes a man who cannot perform with that specific woman though he is fully potent with others, often on a psychological basis. This matters in petitions for annulment of marriage.

Step 3: Its mirror term, Quoad Hunc, describes a woman unable to consummate with one specific man.

Step 4: None of the remaining choices, which talk of a passive partner, hypersexuality, or pedophilia, correspond to this definition.

Male impotent to a particular woman

Quick Tip: Hanc points to one particular woman; the man is potent with everyone except her.

• • •

77. Regarding pseudomembranous colitis, all of the following are true except?

- (A) Toxin A is responsible for the clinical manifestations
- (B) Toxin B is responsible for the clinical manifestations
- (C) Blood in stools is a common feature
- (D) Summit lesions are an early histopathological finding

Correct Answer: (C) Blood in stools is a common feature

SOLUTION:

Step 1: This is a negative-stem question, so the goal is to find the one statement that does not fit pseudomembranous colitis, a *C. difficile* infection triggered by antibiotics.

Step 2: Both toxin A and toxin B drive the illness, validating those two statements, and the summit or volcano lesion is the hallmark early microscopic finding, validating that one as well.

Step 3: The hallmark clinical picture is copious watery diarrhoea, not bloody stools; visible blood is atypical for this condition.

Step 4: Hence the statement that blood in stools is a common feature is the incorrect one and is the answer.

Blood in stools is a common feature

Quick Tip: This *C. difficile* disease causes watery, not bloody, diarrhoea; spot the false statement.

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78. Spores of bacteria are destroyed by which of the following agents?

- (A) Alcohol
- (B) Lysol
- (C) Halogen
- (D) Ionizing radiation

Correct Answer: (C) Halogen

SOLUTION:

Step 1: The question tests which agent can act against endospores, the dormant, highly resistant structures formed by genera such as *Bacillus* and *Clostridium*.

Step 2: Halogens fit this requirement. Iodophors and chlorine-based compounds penetrate the tough spore coat and oxidise key cellular components, so they are classed as sporicidal disinfectants.

Step 3: Reviewing why the others fail: phenolic compounds like Lysol and alcohols such as ethanol act only on the lipid membranes and proteins of growing cells, leaving the spore untouched. Ionizing radiation does inactivate spores at sterilising doses, but among the listed chemical disinfectant choices the answer expected is the halogen group.

Therefore the sporicidal agent here is halogen.

Halogen

Quick Tip: Think of which listed agent is truly sporicidal, not just a vegetative-cell killer.

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79. What is the correct arrangement of lenses from the eye to the source of light in a light microscope?

- (A) Ocular lens : Objective lens : Condenser lens
- (B) Objective lens : Ocular lens : Condenser lens
- (C) Condenser lens : Objective lens : Ocular lens
- (D) Objective lens : Condenser lens : Ocular lens

Correct Answer: (A) Ocular lens : Objective lens : Condenser lens

SOLUTION:

Step 1: Picture the microscope vertically. The eyepiece is at the very top where the eye looks in, the objectives are mounted on the revolving nosepiece just above the specimen, and the condenser is fixed under the stage to gather light from the lamp.

Step 2: Tracing from the top (eye) downward to the lamp gives: ocular (eyepiece) first, then the objective, then the condenser sitting closest to the illumination source.

Step 3: The remaining choices either start with the objective or put the condenser in the middle, which does not match the real construction of the instrument.

So the order from eye to light source is ocular, objective, condenser.

Ocular : Objective : Condenser

Quick Tip: Trace lenses starting at the eyepiece and ending at the lamp under the stage.

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80. The vaccine against *Neisseria meningitidis* contains which of the following?

- (A) Whole bacteria
- (B) Capsular polysaccharide
- (C) Somatic 'O' antigen
- (D) None of these

Correct Answer: (B) Capsular polysaccharide

SOLUTION:

Step 1: *Neisseria meningitidis* is an encapsulated diplococcus, and its capsule is both the main virulence factor and the target for vaccination.

Step 2: Purified capsular polysaccharides from serogroups A, C, Y and W-135 form the basis of the polysaccharide meningococcal vaccines that have been in use since the 1970s. A single dose gives good protection in older children and adults, taking about 10 to 14 days to develop, though it works poorly in children under three years.

Step 3: Whole-cell preparations are not the basis of this vaccine, and the somatic 'O' antigen belongs to the lipopolysaccharide of enteric Gram negative rods. So the meningococcal vaccine is built on capsular polysaccharide.

Capsular polysaccharide

Quick Tip: The serogroup-defining outer layer of the meningococcus is the vaccine antigen.

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81. Glomerulonephritis following streptococcal infection is diagnosed by which of the following tests?

- (A) Blood culture
- (B) Throat culture
- (C) ASO titre
- (D) PCR

Correct Answer: (C) ASO titre

SOLUTION:

Step 1: Acute glomerulonephritis after a streptococcal sore throat or skin infection is a delayed immunological reaction, so the bug itself is usually gone when the kidney disease shows up.

Step 2: Because direct isolation fails, doctors look for the immune footprint of the infection. Antibodies against streptolysin O rise after infection, and measuring this antistreptolysin O level is the standard serological proof of preceding streptococcal disease. Values over 200 units are taken as significant.

Step 3: Throat and blood cultures are typically negative this late, and PCR is not used routinely here. Note that a raised ASO titre confirms recent streptococcal infection but does not by itself prove rheumatic fever. Hence the diagnostic test is the ASO titre.

ASO titre

Quick Tip: The organism is cleared by the time disease appears, so use a serological antibody test.

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82. All of the following are non-sporing anaerobes of medical importance except:

- (A) Actinomyces
- (B) Bacteroides
- (C) Clostridia
- (D) Fusobacterium

Correct Answer: (C) Clostridia

SOLUTION:

Step 1: This is an exception question, so we must spot the single spore-former among a list of anaerobes.

Step 2: Bacteroides and Fusobacterium are Gram negative anaerobic rods that do not form spores, and Actinomyces is a Gram positive filamentous anaerobe that is also non-sporing. All three belong firmly in the non-sporing anaerobe group.

Step 3: Clostridia stand apart because they produce highly resistant endospores, a property that drives diseases such as tetanus, botulism and gas gangrene. As the only spore-former listed, Clostridia is the odd one out.

Clostridia

Quick Tip: Which of these genera famously forms resistant endospores?



83. Consumption of uncooked pork is likely to cause which of the following helminthic diseases?

- (A) Taenia saginata
- (B) Taenia solium
- (C) Trichuris trichiura
- (D) None of these

Correct Answer: (B) Taenia solium

SOLUTION:

Step 1: Match the meat to the worm. Pork is the key clue, so we need the tapeworm whose larval stage lives in pig muscle.

Step 2: That worm is *Taenia solium*, the pork tapeworm. Eating undercooked pork containing *cysticercus cellulosae* lets the larva mature into an adult tapeworm in the human gut. Ingesting its eggs can additionally cause cysticercosis through autoinfection.

Step 3: By contrast, *Taenia saginata* comes from beef carrying *cysticercus bovis*, and *Trichuris trichiura* spreads by the faeco-oral route from soil-borne eggs rather than meat. So the pork-related helminth is *Taenia solium*.

Taenia solium

Quick Tip: Identify the tapeworm whose larva resides in pig muscle.



84. A case of giardiasis typically presents with which of the following?

- (A) Nausea and vomiting
- (B) Abdominal pain
- (C) Steatorrhea and flatulence
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: *Giardia lamblia* colonises the upper small bowel, where the trophozoites coat the lining and block normal nutrient uptake, producing a malabsorptive, non-invasive illness.

Step 2: Because of this, the symptom list is wide-ranging. It includes nausea and

vomiting, crampy abdominal pain, bloating, excess flatus, and steatorrhea from fat malabsorption. Each of the three answer choices names genuine features of the disease.

Step 3: With all the individual options being correct, the combined choice is the right one. Remember that the lack of fever and absence of blood or mucus in the stool help distinguish giardiasis from invasive enteric infections. Hence the answer is all of the above.

All of the above

Quick Tip: This malabsorptive protozoal infection produces several upper-GI symptoms at once.

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85. Aspergillus causes all of the following except?

- (A) Bronchopulmonary allergy
- (B) Otomycosis
- (C) Dermatophytosis
- (D) Allergic sinusitis

Correct Answer: (C) Dermatophytosis

SOLUTION:

Step 1: The stem asks which condition is not in the Aspergillus disease list, so identify the true Aspergillus syndromes first.

Step 2: Aspergillus species trigger hypersensitivity disease in the lung (ABPA) and the paranasal sinuses (allergic fungal sinusitis), and they colonise the ear canal to produce otomycosis. All three are well documented Aspergillus presentations.

Step 3: Ringworm of the skin and nails, termed dermatophytosis, is the work of keratinophilic dermatophytes such as Trichophyton and Microsporum. Aspergillus

is not a dermatophyte and does not cause classic ringworm.

Step 4: Therefore the single odd one out is dermatophytosis.

Dermatophytosis

Quick Tip: Ringworm of skin and nails is caused by dermatophytes, not by a mould like *Aspergillus*.

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86. What is the site for injection of cell culture rabies vaccine?

- (A) Gluteus
- (B) Subcutaneous
- (C) Deltoid
- (D) Anterior abdominal wall

Correct Answer: (C) Deltoid

SOLUTION:

Step 1: Modern cell culture rabies vaccines need a site with good muscle bulk and reliable absorption to mount a protective antibody titre.

Step 2: The deltoid muscle of the upper arm meets this requirement and is the recommended intramuscular site for older children and adults; the anterolateral thigh is reserved for infants below 2 years.

Step 3: The gluteal region is condemned because the thick fat pad leads to deposition in fat rather than muscle, lowering the immune response. Subcutaneous and abdominal wall injection are not part of the schedule.

Step 4: Both intramuscular and intradermal regimens default to the deltoid,

making it the answer.

Deltoid

Quick Tip: Never give rabies vaccine in the gluteus; the upper arm muscle is the standard site.

• • •

87. The immunoglobulin antigenic determinant that changes in the variable region is the?

- (A) Idiotype
- (B) Isotype
- (C) Allotype
- (D) Epitope

Correct Answer: (A) Idiotype

SOLUTION:

Step 1: Map each option to its location on the immunoglobulin to find the one tied to the variable region.

Step 2: The variable region holds the antigen-binding pocket, and the unique determinants there are called idiotypic determinants or idiotypes; they vary clone by clone because each clone binds a different antigen.

Step 3: By contrast, isotype and allotype both reside in the constant region, isotype marking the antibody class and allotype marking inherited allelic differences. Epitope describes a site on the antigen, so it does not fit the question at all.

Step 4: The variable-region determinant is therefore the idiotype.

Idiotype

Quick Tip: Variable region equals the antigen-binding site, whose unique marker is the idiotype.

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88. The cytolytic activity of the membrane attack complex is modulated by?

- (A) Factor I
- (B) Factor B
- (C) Factor S
- (D) Factor H

Correct Answer: (C) Factor S

SOLUTION:

Step 1: Focus on which named factor regulates the terminal complement step that builds the lytic pore rather than the earlier convertase steps.

Step 2: Factor S, the protein vitronectin, attaches to nascent C5b-7 in the fluid phase so the complex cannot anchor to a membrane, blunting formation of C5b-9 and protecting bystander cells. This is the direct modulator of MAC-mediated cytotoxicity.

Step 3: The other choices act upstream: Factor I degrades C3b and C4b, Factor H is its cofactor and a decay accelerator of the alternative pathway, and Factor B feeds the alternative pathway convertase. They do not touch the assembled attack complex.

Step 4: Hence the modulator of MAC cytotoxic activity is Factor S.

Factor S (vitronectin)

Quick Tip: Vitronectin, the S protein, blocks membrane insertion of the C5b-7 complex.

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89. Which of the following is a bioterrorism Category A agent?

- (A) Q fever
- (B) Typhus fever
- (C) Brucella
- (D) Anthrax

Correct Answer: (D) Anthrax

SOLUTION:

Step 1: Recall the CDC bioterrorism tiers, where Category A is reserved for the most dangerous, readily weaponised, high-mortality organisms.

Step 2: Among the choices, only anthrax meets the Category A criteria; it is highly transmissible as spores, has high lethality in the inhalational form, and demands special preparedness.

Step 3: Q fever (*Coxiella*), epidemic typhus (*Rickettsia*) and brucellosis are grouped under Category B, a tier of moderately transmissible agents with lower fatality rates, so they are excluded.

Step 4: The Category A agent in this list is anthrax.

Anthrax

Quick Tip: Anthrax, plague and smallpox are the high-priority Category A agents.

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90. What is the most common organism causing ventilator associated pneumonia?

- (A) Legionella
- (B) Pneumococcus
- (C) Pseudomonas
- (D) Coagulase negative staphylococcus

Correct Answer: (C) Pseudomonas

SOLUTION:

Step 1: Think of VAP as a late-onset nosocomial pneumonia where Gram negative bacilli and resistant Gram positives predominate.

Step 2: Surveillance data put *Pseudomonas aeruginosa* at roughly 21 percent of isolates, narrowly the single most frequent cause, with *Staphylococcus aureus* close behind near 20 percent.

Step 3: The ESKAPE mnemonic (Enterococcus, Staphylococcus, Klebsiella, Acinetobacter, Pseudomonas, Enterobacter) captures the usual culprits. The community-pathogen *Legionella*, the lobar-pneumonia pneumococcus, and skin-flora coagulase negative staphylococcus are not the top VAP agents.

Step 4: As a single agent the answer is *Pseudomonas*.

Pseudomonas aeruginosa

Quick Tip: Among the ESKAPE bugs, *Pseudomonas* is the single most common VAP isolate.

• • •

91. According to the Millennium Development Goals, by how much was child mortality to be reduced by 2015?

- (A) One third
- (B) Half
- (C) Two third
- (D) One fourth

Correct Answer: (C) Two third

SOLUTION:

Step 1: Separate the two child-and-mother MDGs because their reduction targets differ and are commonly mixed up.

Step 2: MDG Goal 4 deals with child survival and pledges a two-thirds fall in the under-five mortality rate from the 1990 baseline by the year 2015.

Step 3: The neighbouring Goal 5 targets a three-quarters reduction in maternal mortality, so the three-quarters value belongs to mothers, not children. One third, half and one fourth do not match any MDG child mortality target.

Step 4: Hence the required reduction in child mortality is two-thirds.

Two third

Quick Tip: MDG 4 aimed to cut under-five mortality by two-thirds; maternal mortality was three-quarters.

• • •

92. A person has lost his leg in an accident because of which he is not able to walk. This is -

- (A) Disease
- (B) Disability
- (C) Impairment
- (D) Handicap

Correct Answer: (B) Disability

SOLUTION:

Step 1: Recall the disablement model in community medicine. A pathological event at the organ level produces an impairment, the impairment limits what the individual can do (disability), and that limitation places the person at a disadvantage in society (handicap).

Step 2: Map the clinical facts. Loss of the leg is the structural defect, which is the impairment. Being unable to walk is the lost capacity to carry out a basic task, which is exactly what disability means.

Step 3: The stem highlights the failure to walk, an activity restriction, so the term being tested is disability rather than impairment, handicap, or disease.

Disability

Quick Tip: Loss of the leg is the impairment; not being able to walk is the resulting activity restriction.

• • •

93. Ideal temperature for DPT storage?

- (A) Room temperature
- (B) 4 to 8 degree C
- (C) 0 to -20 degree C
- (D) None

Correct Answer: (B) 4 to 8 degree C

SOLUTION:

Step 1: Group the vaccine. DPT, DT, TT, and Hepatitis B are the freeze-sensitive vaccines that lose potency if frozen, while OPV and measles tolerate deep freezing.

Step 2: Because DPT is freeze-sensitive, the safe zone at the peripheral level of the cold chain is the refrigerator compartment held at 4 to 8 degree C.

Step 3: Eliminate the others. Room temperature is unsafe heat exposure, and a 0 to -20 degree C freezer would solidify and inactivate DPT.

4 to 8 °C

Quick Tip: DPT is freeze-sensitive, so it stays in the refrigerator, not the freezer.

• • •

94. A 3 month old infant with no chest indrawing and a respiratory rate of 52 per minute. Diagnosis is -

- (A) No pneumonia
- (B) Pneumonia
- (C) Severe pneumonia
- (D) Very severe disease

Correct Answer: (B) Pneumonia

SOLUTION:

Step 1: Match the age band to its threshold. For 2 to 12 months the alarming respiratory rate is 50 or more per minute; at 3 months a count of 52 crosses this line, confirming fast breathing.

Step 2: Check for severity markers. There is no lower chest wall indrawing and no general danger sign, so the case sits in the mildest pneumonia category.

Step 3: Fast breathing alone, with a clear chest wall and no danger signs, is labelled pneumonia, treated with home oral antibiotics.

Pneumonia

Quick Tip: At 2 to 12 months, a rate of 50 or more without chest indrawing equals pneumonia.



95. Shortest incubation period is of which infection?

- (A) Chicken pox
- (B) Measles
- (C) Rubella
- (D) Influenza

Correct Answer: (D) Influenza

SOLUTION:

Step 1: List the incubation windows side by side: influenza 1 to 3 days, measles 10 to 14 days, chicken pox 2 to 3 weeks, rubella 2 to 3 weeks.

Step 2: Pick the minimum. Influenza, a respiratory virus that spreads explosively, has by far the briefest interval before symptoms appear.

Step 3: The three rash-producing infections all incubate for about two weeks or longer, so they are ruled out as the shortest.

Influenza

Quick Tip: Respiratory viruses like influenza incubate in just a few days.

• • •

96. Dose of chloroquine at 4 to 8 years is -

- (A) 150 mg
- (B) 300 mg
- (C) 450 mg
- (D) 600 mg

Correct Answer: (B) 300 mg

SOLUTION:

Step 1: Use the national age-based chloroquine chart that counts 150 mg base tablets. The 5 to 8 year row is allotted two tablets per dosing day at the start of treatment.

Step 2: Convert tablets to milligrams: 2 multiplied by 150 mg gives 300 mg of base for this child.

Step 3: The 1 tablet (150 mg) figure belongs to 1 to 4 years, while 3 or 4 tablets (450 to 600 mg) apply to 9 to 14 years and to adults, so they do not fit a 4 to 8 year old.

300 mg

Quick Tip: Two 150 mg base tablets are given for the 5 to 8 year age band.

• • •

97. Based on the type of life cycle, zoonoses are classified into all of the following except -

- (A) Cyclo-zoonoses
- (B) Meta-zoonoses
- (C) Anthroozoonoses
- (D) Sporo-zoonoses

Correct Answer: (C) Anthroozoonoses

SOLUTION:

Step 1: Separate the two classification systems for zoonoses. The life-cycle scheme depends on how many host species the agent needs and includes direct, cyclo, meta, and sporo zoonoses.

Step 2: The transmission-direction scheme describes who infects whom and includes anthroozoonoses (animal to human), zooanthroponoses (human to animal), and amphixenoses (either way).

Step 3: The odd term in a life-cycle list is anthroozoonoses, which is a direction-of-transmission label, making it the exception asked for.

Anthroozoonoses

Quick Tip: Anthroozoonoses describes direction of transmission, not the life cycle.



98. Disease not covered under the Integrated Disease Surveillance Project (IDSP) is?

- (A) Meningococcal disease
- (B) Tuberculosis
- (C) Herpes zoster
- (D) Cholera

Correct Answer: (C) Herpes zoster

SOLUTION:

Step 1: Recall the purpose of IDSP, which is to catch early warning signals of outbreaks. It therefore tracks epidemic-prone and programme-relevant diseases rather than every infection.

Step 2: Confirm the listed conditions. Cholera sits under water-borne disease, tuberculosis under respiratory disease, and meningococcal disease appears within the meningoencephalitis syndrome group, so all three are monitored.

Step 3: Herpes zoster is a sporadic reactivation illness with no outbreak potential and no control programme, so it falls outside IDSP, marking it the exception.

Herpes zoster

Quick Tip: IDSP watches outbreak-prone diseases; herpes zoster is sporadic and excluded.

• • •

99. Which of the following is a natural family planning method?

- (A) Abstinence
- (B) Coitus interruptus
- (C) BBT (basal body temperature method)
- (D) Safe period

Correct Answer: (C) BBT (basal body temperature method)

SOLUTION:

Step 1: The question separates the formal category of natural family planning methods from the broader bucket of simple, non-device contraceptive practices.

Step 2: Natural family planning is defined by tracking physiological ovulation signs. The basal body temperature technique fits this because progesterone raises the resting body temperature by a few tenths of a degree around ovulation, marking the fertile phase.

Step 3: The companion natural methods are the Billings cervical mucus method (mucus turns thin, stretchy and egg-white-like at ovulation) and the symptothermic approach that blends mucus, temperature and calendar tracking for greater reliability.

Step 4: By contrast, abstinence, withdrawal (coitus interruptus) and the safe period are listed as miscellaneous contraceptive practices rather than as natural family planning per se. Therefore BBT is selected.

BBT (basal body temperature method)

Quick Tip: The method that detects ovulation by a small temperature rise is the natural family planning marker.

• • •

100. What is the present general fertility rate (per 1000 women aged 15-49 years)?

- (A) 84
- (B) 118
- (C) 128
- (D) 138

Correct Answer: (A) 84

SOLUTION:

Step 1: General fertility rate measures childbearing intensity by counting live births in a year against every 1000 women of reproductive age, taken as 15 to 49

years.

Step 2: Because it uses only women who can bear children as the denominator, it is more accurate than the crude birth rate, which divides by the whole population.

Step 3: The figure quoted for India in this era is roughly 84 per 1000 women aged 15 to 49 years, reflecting the long-term decline in fertility.

Step 4: The remaining options of 118, 128 and 138 overstate the current rate and correspond to much earlier, higher-fertility periods, so they are rejected.

84

Quick Tip: GFR is births per 1000 women aged 15-49; the present Indian value is the lowest option.

• • •

101. The richest source of vitamin D is:

- (A) Fish
- (B) Soyabean
- (C) Halibut liver oil
- (D) Vegetables

Correct Answer: (C) Halibut liver oil

SOLUTION:

Step 1: The query asks for the single most concentrated dietary source of vitamin D from the choices given.

Step 2: Fish liver oils top the list of natural vitamin D sources, and halibut liver oil is even richer than the commonly cited cod liver oil, holding the highest

content among the options.

Step 3: Plant items such as soyabean and vegetables carry negligible preformed vitamin D, since the vitamin is largely of animal origin or made in skin by sunlight.

Step 4: Plain fish supplies some vitamin D but cannot match the concentrated liver oil, so halibut liver oil is chosen.

Halibut liver oil

Quick Tip: Concentrated fish liver oils outrank whole fish and plant foods for vitamin D.



102. Sandfly transmits all of the following diseases, EXCEPT:

- (A) Oriental sore
- (B) Leishmaniasis
- (C) Kala-azar
- (D) Relapsing fever

Correct Answer: (D) Relapsing fever

SOLUTION:

Step 1: This is an exception question, so the task is to find the one disease the sandfly does not carry.

Step 2: Sandflies of the genus *Phlebotomus* are classic vectors of leishmaniasis in all its forms: visceral leishmaniasis or kala-azar through *P. argentipes*, and cutaneous leishmaniasis or oriental sore through *P. papatasi* and *P. sergenti*.

Step 3: They additionally transmit the viral sandfly fever. Thus three of the four

options - oriental sore, leishmaniasis and kala-azar - are genuine sandfly-borne conditions.

Step 4: Relapsing fever, caused by *Borrelia*, is carried by lice (louse-borne type) or soft ticks (tick-borne type), never by the sandfly, making it the odd one out.

Relapsing fever

Quick Tip: Sandfly spreads all leishmaniasis and sandfly fever; relapsing fever is louse or tick borne.

• • •

103. The pattern of inter-relationships between persons in a society is called:

- (A) Social structure
- (B) Social psychology
- (C) Herd structure
- (D) Social science

Correct Answer: (A) Social structure

SOLUTION:

Step 1: The definition asked for is the framework that links people to one another within a community.

Step 2: That framework is termed social structure, which describes the stable arrangement of roles, statuses and relationships that gives a society its form.

Step 3: The distractors describe different ideas: social psychology examines individual behaviour in social contexts, social science is an umbrella discipline, and the scientific study of human inter-relationships is sociology rather than the relationships themselves.

Step 4: Matching the definition precisely to the term, social structure is the right choice.

Social structure

Quick Tip: The arrangement of relationships among people in a society has a specific structural name.



104. People are separated into groups, and from each group people are selected randomly. What type of sampling is this?

- (A) Simple random
- (B) Stratified random
- (C) Systematic random
- (D) Cluster

Correct Answer: (B) Stratified random

SOLUTION:

Step 1: The scenario has two clear stages: forming groups first, then randomly picking individuals from inside each group.

Step 2: This two-stage design, where the population is split into strata and a random draw is taken from every stratum, is the textbook definition of stratified random sampling.

Step 3: It is distinguished from the alternatives because simple random sampling involves no grouping at all, systematic sampling selects every fixed interval from an ordered list, and cluster sampling randomly chooses entire groups and surveys everyone within them instead of sampling from each group.

Step 4: The match with the described method confirms stratified random

sampling.

Stratified random sampling

Quick Tip: Divide into groups first, then randomly sample within each group - that is the key.

• • •

105. One Primary Health Centre (PHC) covers how much population in a hilly area?

- (A) 10000
- (B) 20000
- (C) 30000
- (D) 50000

Correct Answer: (B) 20000

SOLUTION:

Step 1: The answer depends on the terrain-based population norms set for Primary Health Centres in India.

Step 2: Standard guidelines fix one PHC per 30000 population in plain regions, but in hilly, tribal and difficult-to-reach regions the figure is lowered to 20000 to keep services accessible across a dispersed population.

Step 3: Since the question specifies a hilly area, the applicable coverage is 20000.

Step 4: The other figures are wrong: 30000 is the plain-area PHC norm, while 10000 and 50000 do not match any PHC standard, so 20000 is selected.

20000

Quick Tip: Plain area PHC covers 30000; the hilly or tribal norm is lower.

• • •

106. Indira Gandhi Matritva Sahyog Yojana (IGMSY) is for women of which age group?

- (A) > 65 years old
- (B) > 50 years old
- (C) > 30 years old
- (D) > 19 years old

Correct Answer: (D) > 19 years old

SOLUTION:

Step 1: Recall that IGMSY is a maternity benefit programme, so the eligible age band must correspond to the childbearing years.

Step 2: The scheme sets the minimum age at 19 years, covering pregnant and breastfeeding mothers for up to two children, which directly points to the option > 19 years.

Step 3: The cash incentive offsets income lost while caring for a newborn and encourages institutional delivery and proper infant feeding.

Step 4: Cut-offs of 30, 50 or 65 years fall outside the typical reproductive window and would exclude most beneficiaries, ruling them out.

Women > 19 years old

Quick Tip: It is a maternity benefit for women in the reproductive age group, minimum 19 years.

• • •

107. The ossicles of the middle ear are mainly responsible for which of the following?

- (A) Amplification of sound intensity
- (B) Reduction of sound intensity
- (C) Protecting the inner ear
- (D) Reduction of impedance to sound transmission

Correct Answer: (D) Reduction of impedance to sound transmission

SOLUTION:

Step 1: The core problem the middle ear solves is the impedance mismatch between air and the cochlear perilymph.

Step 2: Direct air-to-fluid transmission would reflect almost all the energy, so a coupling device is required.

Step 3: The ossicular chain achieves this through the large area ratio of the tympanic membrane to the oval window and the lever action of the ossicles, performing transformer or impedance matching action.

Step 4: Because this matching lowers the effective impedance the inner ear sees, the best answer is reduction of impedance to sound transmission, not simple amplification or protection.

Reduction of impedance to sound transmission

Quick Tip: Think of the middle ear as a transformer matching air to inner ear fluid.



108. In pure tone audiometry, the red line on the audiogram represents which of the following?

- (A) Bone conduction
- (B) Air conduction
- (C) Right ear
- (D) Left ear

Correct Answer: (C) Right ear

SOLUTION:

Step 1: Audiometric charting uses a standard colour code so left and right thresholds never get confused.

Step 2: The right ear is always drawn in red and the left ear in blue; bone and air conduction are separated by symbol type rather than colour.

Step 3: Remember the mnemonic Red equals Right to fix the colour to the side.

Step 4: Hence the red line on the audiogram belongs to the right ear, eliminating bone conduction, air conduction and left ear as answers.

Right ear

Quick Tip: Remember the mnemonic: Red for Right ear.

• • •

109. Bullous myringitis is most commonly caused by which of the following organisms?

- (A) Pseudomonas
- (B) Mycoplasma
- (C) Pneumococcus
- (D) Candida

Correct Answer: (B) Mycoplasma

SOLUTION:

Step 1: The clinical picture of severe ear pain of sudden onset with blood-filled blisters on the drum identifies bullous myringitis.

Step 2: The organism classically linked with this condition is *Mycoplasma pneumoniae*, with viral agents like influenza as another association.

Step 3: Examination shows serosanguinous haemorrhagic bullae over the tympanic membrane and deep external canal, often with mild conductive hearing loss.

Step 4: After resolution the healed drum shows the typical Sago-grain look. Bacteria such as *Pseudomonas* or *Pneumococcus* and the fungus *Candida* do not cause this entity.

Mycoplasma

Quick Tip: An atypical bacterium that also causes walking pneumonia is the culprit.

• • •

110. The delta sign on imaging is seen in which of the following conditions?

- (A) Petrositis
- (B) Acute mastoiditis
- (C) Sigmoid sinus thrombosis
- (D) Glomus tumor

Correct Answer: (C) Sigmoid sinus thrombosis

SOLUTION:

Step 1: When asked about the delta sign, think of a thrombosed dural venous sinus on contrast imaging.

Step 2: On axial post-contrast CT, the sinus appears as a triangle whose wall enhances while the centre stays dark because of the non-enhancing clot, giving the empty delta look.

Step 3: This is the hallmark of sigmoid (or superior sagittal) sinus thrombosis and can also be appreciated on contrast-enhanced MRI.

Step 4: The other choices, namely petrositis, acute mastoiditis and glomus tumor, have their own findings but do not show a delta sign.

Sigmoid sinus thrombosis

Quick Tip: An empty triangle with rim enhancement on contrast CT points to a thrombosed venous sinus.

• • •

111. Gelle's test is used in the diagnosis of which of the following conditions?

- (A) Otosclerosis
- (B) Juvenile angiofibroma
- (C) Nasal polyp
- (D) None

Correct Answer: (A) Otosclerosis

SOLUTION:

Step 1: Gelle's test checks how a change in external canal pressure affects bone-conducted hearing.

Step 2: With a tuning fork on the mastoid, increasing canal pressure by a Siegle's speculum normally drives the ossicles inward and momentarily dampens hearing, which is the positive result.

Step 3: When the stapes is fixed, the pressure change cannot reach the labyrinth, so hearing stays unchanged and the test reads negative.

Step 4: Stapes fixation is the hallmark of otosclerosis, so a negative Gelle's points to this disease, and the test is therefore used for otosclerosis rather than nasal or nasopharyngeal lesions.

Otosclerosis

Quick Tip: A negative result indicates a fixed stapes footplate.

• • •

112. All of the following cranial nerves may be involved in acoustic neuroma, EXCEPT?

- (A) Vagus
- (B) Glossopharyngeal
- (C) Oculomotor
- (D) Facial

Correct Answer: (C) Oculomotor

SOLUTION:

Step 1: Locate acoustic neuroma at the cerebellopontine angle, where it sits beside cranial nerves VII and VIII and, with growth, V, IX, X and XI.

Step 2: Early on the eighth nerve gives sensorineural hearing loss and tinnitus; the fifth nerve loss of corneal reflex; the seventh nerve facial sensory and motor signs.

Step 3: Lower cranial nerves IX and X are reached when the tumour is large, producing swallowing and voice problems.

Step 4: The third (oculomotor) nerve runs in the midbrain and cavernous region, well away from the CP angle, so it is not part of acoustic neuroma involvement. Hence the correct EXCEPT answer is oculomotor.

Oculomotor

Quick Tip: This tumour sits at the cerebellopontine angle, far from the midbrain nerve controlling eye movement.

• • •

113. Which of the following is true about the external nose?

- (A) Upper 2/3 is bony
- (B) Lower 1/3 is cartilaginous
- (C) Single lateral cartilage
- (D) Two nasal bones

Correct Answer: (D) Two nasal bones

SOLUTION:

Step 1: Picture the external nose as a frame with two zones. The top portion is rigid bone and the bottom portion is springy cartilage. Crucially, bone forms only the upper one-third while cartilage forms the lower two-thirds.

Step 2: Test each choice. Saying the upper two-thirds is bony reverses the true proportion, so (a) fails. Saying only the lower one-third is cartilaginous also reverses it, so (b) fails.

Step 3: The cartilage skeleton is not a single plate. It contains paired upper

lateral cartilages, paired lower lateral (alar) cartilages, paired lesser alar cartilages and a midline septal cartilage. A claim of one single lateral cartilage is therefore incorrect, eliminating (c).

Step 4: The bony vault is built from a pair of nasal bones, so the statement about two nasal bones holds true.

Two nasal bones

Quick Tip: Upper third bony (two nasal bones), lower two-thirds cartilaginous.

• • •

114. Posterior epistaxis occurs from which of the following?

- (A) Woodruff's plexus
- (B) Kiesselbach's plexus
- (C) Atherosclerosis
- (D) Little's area

Correct Answer: (A) Woodruff's plexus

SOLUTION:

Step 1: Split nosebleeds into front and back. The key is to match the named vascular landmark to the correct location.

Step 2: The back of the nose drains through a venous network on the lateral wall near the posterior end of the inferior turbinate. This is Woodruff's plexus, the classic source of posterior epistaxis, typically seen in older hypertensive patients with brisk bleeds.

Step 3: The front of the nose has Little's area on the antero-inferior septum, where Kiesselbach's plexus sits. Both of these belong to anterior epistaxis, so the options naming Kiesselbach's plexus and Little's area are excluded.

Step 4: Atherosclerosis is a vessel-wall disease, not a defined bleeding point in the nose, so it cannot be the answer.

Woodruff's plexus

Quick Tip: Posterior bleed = Woodruff's plexus; anterior bleed = Little's area/Kiesselbach.

• • •

115. What is the investigation of choice for nasopharyngeal angiofibroma?

- (A) X-ray
- (B) MRI
- (C) Plain CT
- (D) CT with contrast

Correct Answer: (D) CT with contrast

SOLUTION:

Step 1: The clinical setting is an adolescent boy with recurrent epistaxis and nasal obstruction, pointing to JNA, a very vascular benign nasopharyngeal tumour. The ideal test must capture vascularity plus bone destruction.

Step 2: Adding iodinated contrast to a CT lights up the tumour brilliantly because of its rich blood supply, and CT bone windows reveal erosion and the tell-tale forward push of the back wall of the maxillary antrum. This combination is why CECT is named the investigation of choice.

Step 3: A plain radiograph gives only crude information and cannot stage the lesion. A non-contrast CT misses the dramatic enhancement that confirms the vascular diagnosis. Both are inferior choices.

Step 4: MRI does add value for skull base and intracranial spread and angiography guides embolisation, yet the standard answer for the best diagnostic investigation remains CT with contrast.

CT with contrast

Quick Tip: JNA is vascular; CECT shows enhancement, bone erosion and Holman-Miller sign.

• • •

116. Regarding acute retropharyngeal abscess, which of the following is NOT true?

- (A) Due to lymphadenitis
- (B) Common in adults
- (C) Swelling on one side of midline
- (D) Incision and drainage

Correct Answer: (B) Common in adults

SOLUTION:

Step 1: This is a negative-stem question, so we hunt for the single wrong statement about the acute type of retropharyngeal abscess.

Step 2: The acute variety is a disease of infants and young children under three years. It develops when the retropharyngeal lymph nodes suppurate after an upper airway infection, giving fever, sore throat, dysphagia and stridor. Calling it common in adults contradicts this, so that choice is the false one.

Step 3: The triggering lymphadenitis is genuine, and because the nodes are paired and off-centre, the swelling bulges to one side of the midline. Both of those statements are correct and therefore are not the answer.

Step 4: Surgical incision and drainage is the standard management, so that

statement is also true. The adult equivalent is the chronic abscess linked to tuberculous caries of the cervical spine, which is centrally placed in the midline.

Common in adults (false statement)

Quick Tip: Acute form is in infants/children; the chronic (TB spine) form is the adult type.

• • •

117. What is the most common cause of oroantral fistula?

- (A) Tuberculosis
- (B) Penetrating injury
- (C) Tooth extraction
- (D) Iatrogenic

Correct Answer: (C) Tooth extraction

SOLUTION:

Step 1: Start from anatomy. The roots of the upper molars sit just under the floor of the maxillary sinus, sometimes separated by only a thin shell of bone or by mucosa alone.

Step 2: Because of this proximity, pulling out an upper molar can tear through into the antrum and leave a permanent track to the mouth. Extraction is therefore the leading cause, and the first molar contributes roughly half of all such cases.

Step 3: Granulomatous infections of the maxilla such as tuberculosis, malignant erosion, trauma and surgical mishaps are all listed in textbooks but each is uncommon compared with routine dental extraction. They are distractors here.

Step 4: The diagnosis is confirmed by food or fluid passing from mouth to nose and the inability to create suction in the mouth. The single best answer for the

commonest cause is tooth extraction.

Tooth extraction

Quick Tip: Upper molar roots lie near the antral floor; extraction is the commonest cause.

• • •

118. Killian's incision is used for which of the following procedures?

- (A) Septoplasty
- (B) Submucous resection (SMR)
- (C) Proof puncture
- (D) Modified radical mastoidectomy

Correct Answer: (A) Septoplasty

SOLUTION:

Step 1: The eponym Killian points straight to nasal septal surgery. The cut is curvilinear and placed a few millimetres above the caudal edge of the septal cartilage on the concave side of the deviation.

Step 2: This approach belongs to septoplasty, where the surgeon raises a mucoperichondrial flap, separates the septal cartilage from the vomer and ethmoid plate, and reshapes only the deviated parts while keeping the supporting framework intact.

Step 3: Submucous resection is associated with a transfixion or Freer's incision and aims to remove cartilage and bone rather than conserve it, so it does not fit the Killian eponym as well.

Step 4: Proof puncture targets the maxillary sinus through the inferior meatus and a modified radical mastoidectomy is an ear procedure done via a postaural

route; neither involves a septal incision. The correct match is septoplasty.

Septoplasty

Quick Tip: Killian's incision = curvilinear septal incision for septoplasty.

• • •

119. A child has a congenital cataract involving the visual axis which was detected by the parents right at birth. This child should be operated:

- (A) Immediately
- (B) At 2 months of age
- (C) At 1 year of age when the globe becomes normal sized
- (D) After 4 years when entire ocular and orbital growth becomes normal

Correct Answer: (A) Immediately

SOLUTION:

Step 1: The danger of a dense cataract sitting on the visual axis of a newborn is not the lens itself but the brain. With no clear image reaching the retina, the developing visual cortex never learns to see, producing deprivation amblyopia.

Step 2: The fixation reflex matures roughly between 2 and 4 months of life. To preserve sight, the obstruction must be removed before that period closes, and surgeons aim for the earliest feasible moment.

Step 3: Therefore a visual-axis cataract found at birth is operated immediately. Any plan to delay to 2 months, 1 year or 4 years lets amblyopia become fixed and the eye is then unlikely to recover useful vision, so those options are rejected.

Step 4: As a rule of thumb, bilateral dense cataracts are tackled by about 6 weeks and unilateral dense cataracts within days, each paired with vigorous amblyopia

treatment. Early surgery is the guiding principle.

Immediately

Quick Tip: Dense visual-axis congenital cataract risks deprivation amblyopia; operate as early as possible.

• • •

120. Which are the first order neurons in the optic pathway?

- (A) Bipolar cells
- (B) Ganglionic cells
- (C) Cells of lateral geniculate body
- (D) Astrocytes

Correct Answer: (A) Bipolar cells

SOLUTION:

Step 1: Trace the relay of impulses from the eye to the brain. Light first strikes the rods and cones, which act as the sensory receptor layer of the retina.

Step 2: From the receptors, the signal passes to the bipolar cell. By definition the bipolar cell is the first neuron in the relay chain, so it is the first order neuron.

Step 3: The relay then continues to the ganglion cell (second order), whose fibres travel through the optic nerve, chiasma and tract, and finally to the neurons of the lateral geniculate body (third order) that project as optic radiations.

Step 4: Astrocytes only provide structural and metabolic support and never relay vision. Therefore the first order neuron is the bipolar cell.

Bipolar cells

Quick Tip: Count the relay neurons starting from the receptor: receptor, then bipolar cell.

• • •

121. During retinoscopy of a 30 year old male, which cycloplegic is used routinely?

- (A) Atropine 1% ointment
- (B) Cyclopentolate 1% drop
- (C) Homatropine 2% drop
- (D) None of the above

Correct Answer: (D) None of the above

SOLUTION:

Step 1: The question is essentially asking what is given to a healthy adult before retinoscopy. The key idea is matching the drug to the patient's age and accommodative power.

Step 2: A patient aged 30 falls in the 20 to 40 year bracket. By this age the lens has already begun to lose elasticity and accommodation is naturally reduced, so paralysing the ciliary muscle adds little value.

Step 3: Because routine cycloplegia is not required at this age, none of the specific agents listed (atropine ointment, cyclopentolate drop, homatropine drop) is the routine choice. Cycloplegics here are used only for selected indications such as suspected accommodative spasm or a discrepancy between objective and subjective findings.

Step 4: Thus, for routine retinoscopy in a 30 year old, no cycloplegic is needed.

None of the above

Quick Tip: At 20 to 40 years the accommodative reserve is low, so routine cycloplegia is not needed.

• • •

122. All statements are true about trachoma except:

- (A) Trachoma is caused by a bedsonian organism of the psittacosis-lymphogranuloma-trachoma (PLT) group.
- (B) Strains mainly responsible are A, B, Ba and C.
- (C) Marked papillary hyperplasia with limbal follicles is seen in stage III.
- (D) Corneal ulceration is a complication.

Correct Answer: (C) Marked papillary hyperplasia with limbal follicles is seen in stage III.

SOLUTION:

Step 1: This is a true-except question on trachoma, so we confirm each correct fact and isolate the wrong one.

Step 2: The cause is *Chlamydia trachomatis*, classed as a bedsonian organism in the PLT group, and the blinding serotypes are A, B, Ba and C. Both of these match standard teaching, so they are not the answer.

Step 3: The staging follows McCallan. Stage I shows immature follicles, stage II shows mature follicles with papillae and pannus, stage III is the scarring (cicatrising) stage, and stage IV is the sequelae stage. Active follicular and papillary changes belong to the early stages, not stage III. So the claim that marked papillary hyperplasia with limbal follicles is seen in stage III is incorrect.

Step 4: Corneal ulceration is a recognised complication, so it is a true statement.

The single false statement is option c.

Marked papillary hyperplasia with limbal follicles in stage III

Quick Tip: Stage III in McCallan staging is the scarring stage, not the active follicular stage.

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123. Immune ring is a feature of?

- (A) Interstitial keratitis
- (B) Fungal corneal ulcer
- (C) Bacterial corneal ulcer
- (D) Herpes simplex keratitis

Correct Answer: (B) Fungal corneal ulcer

SOLUTION:

Step 1: Recall the classic picture of a mycotic keratitis, where the corneal signs outweigh the patient's complaints.

Step 2: Typical findings include a dry, greyish-white ulcer with feathery finger-like edges, small satellite lesions surrounding the main lesion, and a ring of immune deposits encircling the ulcer. This ring is the sterile immune ring of Wesseley.

Step 3: The ring represents a local immune response to fungal antigens diffusing into the stroma, and it is regarded as a pointer toward fungal aetiology. Bacterial ulcers instead tend to be wet with thick discharge, and herpetic keratitis classically gives a dendritic ulcer.

Step 4: Linking the immune ring to its disease, the answer is fungal corneal ulcer.

Fungal corneal ulcer

Quick Tip: Think of the sterile ring of Wessely with feathery margins and satellite lesions.

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124. Red keratic precipitates are seen in?

- (A) Granulomatous uveitis
- (B) Hemorrhagic uveitis
- (C) Old healed uveitis
- (D) Acute anterior uveitis

Correct Answer: (B) Hemorrhagic uveitis

SOLUTION:

Step 1: Match the KP type to its inflammatory setting using its appearance.

Step 2: The word red points to blood. Red KPs contain RBCs mixed with inflammatory cells, and bleeding into the inflamed eye is what produces them. This corresponds to hemorrhagic uveitis.

Step 3: For contrast, mutton-fat (large, waxy, yellowish) KPs belong to granulomatous uveitis, small fine granular KPs belong to non-granulomatous uveitis, and in healed disease the KPs shrink, pigment and develop crenated edges.

Step 4: Therefore red keratic precipitates indicate hemorrhagic uveitis.

Hemorrhagic uveitis

Quick Tip: Red colour means RBCs in the precipitate, so think of bleeding-associated uveitis.

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125. Posterior lenticonus is seen in?

- (A) Alport's syndrome
- (B) Lowe's syndrome
- (C) Marfan syndrome
- (D) Homocystinuria

Correct Answer: (B) Lowe's syndrome

SOLUTION:

Step 1: Separate the two lens deformities. Lenticonus is a conical protrusion of the lens, and its direction (anterior versus posterior) is tied to specific syndromes.

Step 2: Anterior lenticonus is the hallmark of Alport's syndrome. The posterior variety is linked with Lowe's syndrome, the oculocerebrorenal disorder.

Step 3: The two remaining options describe dislocated rather than cone-shaped lenses. Marfan syndrome typically shows upward lens subluxation and homocystinuria shows downward subluxation, so neither is lenticonus.

Step 4: The oil-globule appearance in the red reflex confirms lenticonus, and in the posterior form the cause is Lowe's syndrome.

Lowe's syndrome

Quick Tip: Anterior lenticonus goes with Alport, posterior lenticonus goes with Lowe.

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126. Acute angle closure glaucoma first line treatment?

- (A) IV mannitol
- (B) Acetazolamide
- (C) Pilocarpine
- (D) Beta blocker eyedrops

Correct Answer: (A) IV mannitol

SOLUTION:

Step 1: Frame acute angle closure glaucoma as a pressure emergency where speed of pressure reduction decides the choice.

Step 2: Therapy begins systemically. An osmotic such as IV mannitol draws water out of the vitreous and lowers pressure quickly, and IV acetazolamide cuts aqueous formation. Mannitol gives the most rapid drop, so it is started first.

Step 3: Topical agents like pilocarpine and timolol are layered in only after the pressure begins to fall, because at extreme pressures the iris muscle is ischaemic and pilocarpine cannot constrict it effectively. Mydriatics like atropine are contraindicated as they worsen the block.

Step 4: The lasting cure is a peripheral iridotomy done after medical control. As the first line drug among the choices, IV mannitol is correct.

IV mannitol

Quick Tip: You need the fastest pressure-lowering agent first, an IV osmotic.

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127. Photoretinitis is due to?

- (A) Snow reflection
- (B) Solar eclipse
- (C) Blunt trauma
- (D) None of the above

Correct Answer: (B) Solar eclipse

SOLUTION:

Step 1: The question asks which exposure injures the retina by light. Photoreinitis = a macular burn produced when the eye fixates on a bright source, the commonest real-world example being eclipse viewing.

Step 2: Mechanism is photochemical, not thermal. Energy in the blue/violet-blue band of visible light (roughly 400 to 500 nm) plus some UV-A drives oxidative damage at the fovea. This is why it carries the name blue-light retinal injury, and why earlier belief that infrared was responsible is incorrect.

Step 3: Eliminating the other options - snow reflection produces ultraviolet keratitis affecting the cornea, and blunt trauma produces commotio retinae or choroidal rupture through mechanical force. Neither is a light-driven foveal photochemical lesion.

Step 4: Symptoms include a lasting after-image, central positive scotoma and distorted vision, matching a foveal photochemical burn from eclipse gazing.

Solar eclipse

Quick Tip: Think of the classic warning against looking directly at an eclipse.

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128. Altitudinal visual field defect is seen in?

- (A) Papilloedema
- (B) Retinitis pigmentosa
- (C) Anterior ischemic optic neuropathy
- (D) Buphthalmos

Correct Answer: (C) Anterior ischemic optic neuropathy

SOLUTION:

Step 1: Key clue - a defect bounded by the horizontal meridian (altitudinal) localises to the optic disc, because retinal nerve fibres and the disc blood supply are divided into superior and inferior territories.

Step 2: The disease that classically infarcts one of these halves is anterior ischemic optic neuropathy. Occlusion of the short posterior ciliary arteries starves the prelaminar and laminar disc, killing the fibres of the upper or lower segment and leaving the other intact.

Step 3: Presentation - abrupt, painless loss of vision with a swollen, often pale disc that evolves into optic atrophy. The arteritic form is driven by temporal arteritis, the non-arteritic form by crowded disc plus vascular risk factors such as severe anemia or hypotension after haemorrhage.

Step 4: Distractors - papilloedema only enlarges the physiological blind spot, retinitis pigmentosa narrows the field concentrically (tunnel vision), and buphthalmos is infantile glaucoma. None gives a horizontal step defect.

Anterior ischemic optic neuropathy

Quick Tip: A field loss that respects the horizontal line points to the optic disc circulation.



129. Positive forced duction test is seen in?

- (A) Extraocular muscle palsy
- (B) Mechanical restriction of ocular movement
- (C) Concomitant squint
- (D) None

Correct Answer: (B) Mechanical restriction of ocular movement

SOLUTION:

Step 1: The forced duction test separates a paralytic cause of limited eye movement from a mechanical one. The surgeon physically pushes the anaesthetised globe in the direction of restricted gaze.

Step 2: If the eye refuses to budge and resistance is encountered, the result is read as positive. The block is structural - a stiff, scarred or entrapped muscle is anchoring the globe. Classic causes are Graves orbitopathy with a tight inferior or medial rectus and trapdoor floor fractures.

Step 3: If the eye glides freely, the test is negative and the cause of the motility deficit is neuromuscular weakness, that is, an extraocular muscle palsy. The hardware is fine, the motor power is gone.

Step 4: Concomitant squint keeps a constant angle in all directions with normal ductions, so its test is also negative. Only mechanical restriction yields resistance.

Mechanical restriction of ocular movement

Quick Tip: Resistance on passive rotation means something is physically tethering the eye.



130. Dacryocystorhinostomy involves?

- (A) Opening up the terminal blocked end of nasolacrimal duct
- (B) Connecting the lacrimal sac to nose by breaking the medial wall
- (C) Complete excision of lacrimal sac
- (D) Insertion of drainage tube in the lacrimal sac

Correct Answer: (B) Connecting the lacrimal sac to nose by breaking the medial wall

SOLUTION:

Step 1: Read the Greek roots - dacryocyst (tear sac) + rhino (nose) + stomy (opening). The operation makes a shortcut for tears from the sac straight into the nasal cavity, sidestepping a diseased nasolacrimal duct.

Step 2: Technically the surgeon nibbles away the medial bony wall that lies between the lacrimal sac and the nose, then sutures the opened sac to the nasal mucosa at the level of the middle meatus. Either an external skin incision or an endoscopic endonasal route can be used.

Step 3: Why prefer it over simply taking out the sac (dacryocystectomy)? Because DCR restores tear flow, so the patient is not left with a permanently watering eye. It is the treatment for chronic dacryocystitis and acquired or congenital duct obstruction.

Step 4: The other choices are wrong - merely opening the lower duct, removing the whole sac, or pushing in a tube are not what DCR means. The defining act is joining sac to nose through the broken medial wall.

Connecting the lacrimal sac to nose by breaking the medial wall

Quick Tip: The suffix -stomy means making a new opening between the sac and the nose.



131. Parachute lesions (sea-fan neovascularization) are seen in?

- (A) Eales disease
- (B) Diabetes
- (C) Sick cell anemia
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: The common thread the question is testing is peripheral retinal ischaemia leading to new vessel fronds shaped like a sea-fan or parachute. Identify which listed diseases produce that ischaemic proliferative state.

Step 2: Sick cell anemia is the textbook owner of the sea-fan - peripheral arteriolar occlusion from sickling creates non-perfused retina and fan-like neovascular tufts.

Step 3: Eales disease, an obliterative perivasculitis affecting the peripheral veins of young men, equally leads to capillary dropout, neovascular tufts and vitreous bleeds.

Step 4: Proliferative diabetic retinopathy completes the trio, with extensive capillary non-perfusion generating fan-shaped neovascularization. Because each of the three is a proliferative ischaemic retinopathy showing these fronds, no single option can be excluded.

All of the above

Quick Tip: Any retinopathy with peripheral ischaemia can sprout sea-fan new vessels.

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132. Nelson syndrome is most likely seen after:

- (A) Hypophysectomy
- (B) Adrenalectomy
- (C) Thyroidectomy
- (D) Orchidectomy

Correct Answer: (B) Adrenalectomy

SOLUTION:

Step 1: Nelson syndrome links a surgical event to a runaway corticotroph tumour. The trigger is taking out both adrenal glands, which was historically used to control Cushing disease driven by a pituitary adenoma.

Step 2: Logic of the feedback loop - cortisol normally suppresses the pituitary corticotrophs. Remove the adrenals and cortisol falls to zero, releasing the brake. ACTH output climbs steeply and the residual adenoma proliferates.

Step 3: The clinical signature is striking skin darkening (ACTH and its melanocyte-stimulating fragment) plus mass effects of an enlarging intrasellar tumour - headaches, bitemporal field loss and possible cavernous sinus extension. Prophylactic pituitary irradiation reduces the risk.

Step 4: Ruling out the rest - removing the pituitary (hypophysectomy) deletes the source tumour, while thyroidectomy and orchidectomy leave the cortisol-ACTH axis untouched.

Adrenalectomy

Quick Tip: Loss of cortisol feedback unleashes a pituitary ACTH adenoma.

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133. Blood transfusion should be completed within how many hours of initiation?

- (A) 1 to 4 hours
- (B) 3 to 6 hours
- (C) 4 to 8 hours
- (D) 8 to 12 hours

Correct Answer: (A) 1 to 4 hours

SOLUTION:

Step 1: The governing principle is the 4-hour rule of blood banking. Refrigerated blood stays sterile, but once hung at the bedside it warms up and any contaminating bacteria can multiply.

Step 2: Therefore, from the moment the giving set spikes the bag, the transfusion of that unit must be completed in no more than four hours.

Step 3: A practical corollary - blood that has been out of the controlled cold chain for longer than 30 minutes should not be returned to the fridge, and anything not infused within the 4-hour window is discarded for safety.

Step 4: Checking the choices, only the 1 to 4 hour range stays inside the limit, while 3 to 6, 4 to 8 and 8 to 12 hours breach it and invite sepsis.

1 to 4 hours

Quick Tip: Remember the standard 4-hour limit once the pack is spiked.

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134. A patient has ascitic fluid with a serum-ascites albumin gradient (SAAG) greater than 1.1 g/dL and an ascitic total protein concentration of 2.8 g/dL. The most likely cause is:

- (A) Nephritic syndrome
- (B) Cardiac failure
- (C) Tuberculosis
- (D) Portal hypertension

Correct Answer: (B) Cardiac failure

SOLUTION:

Step 1: Two numbers define this ascites: a SAAG above 1.1 g/dL and a fluid protein of 2.8 g/dL. Reading them together is the key.

Step 2: A SAAG above 1.1 g/dL is a marker of raised portal sinusoidal pressure, which is seen in both cirrhosis and right-sided heart failure. So the gradient alone narrows it to these two.

Step 3: The discriminator is the protein level. In heart failure the liver sinusoids are not destroyed, so the transudate carries plenty of protein and the value climbs past 2.5 g/dL. In cirrhosis the diseased sinusoids hold protein back, keeping fluid protein low. A protein of 2.8 g/dL therefore signals the cardiac pattern.

Step 4: Low-SAAG causes such as tuberculous peritonitis and nephritic syndrome are ruled out by the high gradient, and cirrhotic portal hypertension is ruled out by the high protein.

Cardiac failure

Quick Tip: High SAAG plus high ascitic protein (>2.5 g/dL) points to a cardiac, not cirrhotic, cause.

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135. In chronic obstructive pulmonary disease (COPD), which of the following spirometry findings is true?

- (A) FEV1/FVC less than 0.7
- (B) Normal FEV1/FVC ratio
- (C) Reduced residual volume
- (D) Increased FEV1

Correct Answer: (A) FEV1/FVC less than 0.7

SOLUTION:

Step 1: Think of COPD as a problem of getting air out. The lung empties slowly, so the volume blown out in the first second is disproportionately small.

Step 2: Spirometry expresses this as the FEV1 divided by the total FVC. When that fraction drops below 0.7 after a bronchodilator, obstruction is confirmed. This single cutoff is the accepted definition of COPD.

Step 3: The other choices contradict the disease physiology. Air trapping raises residual volume rather than lowering it, FEV1 declines rather than rises, and a preserved ratio would mean no obstruction at all.

Step 4: So among the listed findings, only the reduced ratio below 0.7 matches COPD.

$$\text{FEV1/FVC} < 0.7$$

Quick Tip: The defining spirometry criterion for COPD is a post-bronchodilator FEV1/FVC below 0.7.

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136. A chest X-ray shows bilateral lung infiltrates suggestive of diffuse parenchymal lung disease. The next most appropriate investigation is:

- (A) Sputum examination
- (B) CT scan (HRCT)
- (C) Bronchoscopy
- (D) Empirical antibiotics

Correct Answer: (B) CT scan (HRCT)

SOLUTION:

Step 1: A diffuse bilateral shadowing pattern tells us the lung interstitium is involved, but a flat two-dimensional radiograph blurs the fine detail needed to classify it.

Step 2: High-resolution CT solves this by giving thin-section images that reveal the exact texture and zonal spread of the disease, such as ground-glass change or honeycombing. For this reason it is performed in almost every case of diffuse parenchymal disease and is the appropriate next test.

Step 3: Looking at sputum or starting antibiotics assumes infection, which a diffuse interstitial pattern does not support. Bronchoscopy is more invasive and is reserved for after imaging has guided where to sample.

Step 4: Therefore the immediate follow-up to the chest X-ray is HRCT.

CT (HRCT) scan

Quick Tip: For diffuse bilateral infiltrates, HRCT is the next step to characterise the pattern.

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137. Calciophylaxis is a severe, life-threatening condition that occurs most commonly in:

- (A) Parathyroidectomy
- (B) Medullary carcinoma of thyroid
- (C) Hyperthyroidism
- (D) End-stage renal disease

Correct Answer: (D) End-stage renal disease

SOLUTION:

Step 1: Calciphylaxis describes calcium laid down in the muscular wall of skin arterioles, choking off blood flow and producing dusky, intensely painful skin necrosis and non-healing ulcers.

Step 2: The root problem is grossly disturbed calcium-phosphate balance, which lets calcium precipitate in soft tissues and vessel walls rather than bone.

Step 3: The patients who reliably show this imbalance are those with failed kidneys. In end-stage renal disease, especially during long-term haemodialysis, high phosphate, raised calcium-phosphate product and secondary hyperparathyroidism set the stage for arteriolar calcification.

Step 4: The thyroid options and parathyroidectomy do not create this metabolic milieu, so they are not the usual cause. The condition clusters in dialysis-dependent renal failure.

End-stage renal disease

Quick Tip: Calciphylaxis is classically seen in ESRD patients on haemodialysis.



138. Excluding head trauma, the most common cause of subarachnoid haemorrhage is:

- (A) Arterio-venous malformation
- (B) Cavernous angioma
- (C) Aneurysm
- (D) Hypertension

Correct Answer: (C) Aneurysm

SOLUTION:

Step 1: When blood collects in the subarachnoid space without a history of injury, one cause dominates the statistics.

Step 2: That cause is a ruptured saccular aneurysm, also called a berry aneurysm. These outpouchings form where arteries of the circle of Willis branch, and their walls are thin enough to burst suddenly, producing the classic thunderclap headache.

Step 3: The remaining choices are weaker. Arteriovenous malformations and cavernous angiomas are uncommon contributors, while raised blood pressure tends to cause bleeding deep within the brain substance rather than over its surface.

Step 4: So, excluding trauma, aneurysm rupture is the top cause of subarachnoid haemorrhage.

Aneurysm

Quick Tip: Excluding trauma, ruptured berry (saccular) aneurysm is the top cause of SAH.

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139. Liver biopsy is indicated in all of the following except:

- (A) Amoebic hepatitis
- (B) Wilson's disease
- (C) Chronic hepatitis B and C
- (D) Autoimmune hepatitis

Correct Answer: (A) Amoebic hepatitis

SOLUTION:

Step 1: The question lists conditions and asks which one does not call for a liver biopsy. Reviewing each helps isolate the odd one out.

Step 2: Three of the options rely on biopsy. Chronic viral hepatitis B and C need tissue to grade inflammation and stage fibrosis, Wilson's disease needs hepatic copper measured on the sample, and autoimmune hepatitis is confirmed and monitored histologically.

Step 3: Amoebic involvement of the liver breaks this pattern. The lesion is typically a pus-filled abscess, and pushing a needle into it can trigger haemorrhage or rupture and spread infection. It is diagnosed with imaging and amoebic serology, then treated with metronidazole.

Step 4: Because biopsy is avoided rather than recommended here, amoebic hepatitis is the exception.

Amoebic hepatitis

Quick Tip: Biopsy is avoided in amoebic liver disease due to risk of rupture and bleeding.

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140. Treatment of hypercalcemia includes all of the following except:

- (A) Steroids
- (B) Bisphosphonates
- (C) Phosphate
- (D) Strontium

Correct Answer: (D) Strontium

SOLUTION:

Step 1: To answer an except question, recall the actual toolkit for lowering a high serum calcium and then spot the intruder.

Step 2: The backbone is volume repletion with saline followed by a loop diuretic to drive calcium out in the urine. Bisphosphonates shut down osteoclast-driven bone breakdown, and calcitonin gives a quick early drop.

Step 3: Beyond these, oral phosphate binds calcium, and glucocorticoids (steroids) are effective when excess vitamin D or granulomatous disease drives the calcium up. Dialysis is reserved for severe or renal cases. Thus steroids, bisphosphonates and phosphate all belong on the list.

Step 4: Strontium, in the form of strontium ranelate, is a bone-building agent for osteoporosis and plays no part in treating hypercalcemia, so it is the odd one out.

Strontium

Quick Tip: Strontium (an osteoporosis drug) is not used to treat hypercalcemia.

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141. Which is the most common malignancy associated with rheumatoid arthritis?

- (A) Diffuse large B cell lymphoma
- (B) Large granular lymphocytic leukemia
- (C) Chronic lymphocytic leukemia
- (D) None of the above

Correct Answer: (B) Large granular lymphocytic leukemia

SOLUTION:

Step 1: Long-standing rheumatoid arthritis keeps the immune system in an activated state. This ongoing antigenic drive favours abnormal clonal growth of lymphocytes over time.

Step 2: Among the lymphoid cancers, the one repeatedly tied to RA is large granular lymphocytic leukemia, a clonal increase of cytotoxic lymphocytes that frequently coexists with the Felty-type picture of low neutrophils and an enlarged spleen.

Step 3: When the reactive granular lymphocyte proliferation seen in some RA patients becomes clonal, it crosses over into LGL leukemia, explaining the recurrent infections from neutropenia in these cases.

Step 4: The other listed cancers, namely diffuse large B cell lymphoma and chronic lymphocytic leukemia, are not the signature RA-linked malignancy, so they are set aside.

Large granular lymphocytic leukemia

Quick Tip: Think of the malignancy that overlaps with Felty syndrome in RA.

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142. Deficiency of vitamin E typically causes which of the following?

- (A) Hemorrhagic stroke
- (B) Cardiac failure
- (C) Ataxia
- (D) Megaloblastic anemia

Correct Answer: (C) Ataxia

SOLUTION:

Step 1: Tocopherol, the active form of vitamin E, is the principal fat-soluble antioxidant that shields membrane lipids from free-radical attack. Nervous tissue is heavily dependent on this protection.

Step 2: A shortfall of vitamin E therefore damages long sensory and cerebellar tracts, and the clinical hallmark is a progressive ataxia along with impaired proprioception and absent reflexes. This makes ataxia the correct option.

Step 3: Because the vitamin is plentiful in everyday foods such as cooking oils and green vegetables, true deficiency is rare and is usually tied to states that block fat absorption, including chronic pancreatic disease.

Step 4: The remaining choices do not fit. Strokes and heart failure are unrelated to this vitamin, and a megaloblastic blood picture points to B12 or folate lack instead.

Ataxia

Quick Tip: This fat-soluble antioxidant protects neurons; its lack hits the cerebellum and posterior columns.

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143. A 25 year old woman presents with generalized restriction of eye movement in all directions, intermittent ptosis, proximal muscle weakness, and fatigability. Which is the MOST useful test in making the diagnosis?

- (A) CPK
- (B) Edrophonium test
- (C) EMG
- (D) Muscle biopsy

Correct Answer: (B) Edrophonium test

SOLUTION:

Step 1: A young woman with drooping eyelids that come and go, eye movements limited in every direction, and limb weakness that grows with exertion fits myasthenia gravis, an antibody-mediated failure of signal transmission at the neuromuscular junction.

Step 2: To confirm it quickly, the edrophonium challenge is preferred. By briefly blocking acetylcholinesterase, edrophonium boosts available acetylcholine, and an immediate but short-lived reversal of the ptosis or weakness clinches the diagnosis.

Step 3: Supporting investigations include antibodies to the acetylcholine receptor, which are almost diagnostic when present but can be negative in true disease, and slow repetitive nerve stimulation, which reveals a falling response amplitude.

Step 4: Creatine kinase and a muscle biopsy are aimed at muscle-fibre disease rather than the junction, and a routine EMG lacks the specificity of the drug test, so none of these is the single most useful choice.

Edrophonium test

Quick Tip: A rapid-acting anticholinesterase that briefly reverses the ptosis points to the diagnosis.

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144. The tensile strength of a healing wound reaches that of unwounded tissue by which time?

- (A) 6 weeks
- (B) 2 months
- (C) 4 months
- (D) None

Correct Answer: (D) None

SOLUTION:

Step 1: Recovery of mechanical strength in a wound is governed by ongoing collagen synthesis, maturation, and cross-link formation. The central fact is that scar tissue stays permanently weaker than intact skin.

Step 2: Tracking the numbers, strength is about 10 percent of normal when sutures come out near day 7, then climbs steeply during the following month.

Step 3: Around the third month the rate of gain flattens out, settling at a ceiling of roughly 70 to 80 percent of original skin strength. Since the curve never touches 100 percent, no listed deadline can be right.

Step 4: Therefore the choices of 6 weeks, 2 months, and 4 months are all incorrect, and the answer must be None because full equivalence is never achieved.

None

Quick Tip: A scar plateaus at about 70 to 80 percent of normal skin; it never reaches 100 percent.

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145. Complications of total parenteral nutrition include which of the following?

- (A) Hyperglycemia
- (B) Hyperkalemia
- (C) Hyperosmolar dehydration
- (D) a and b

Correct Answer: (D) a and b

SOLUTION:

Step 1: Because TPN infuses a dense nutrient mixture straight into the bloodstream, the body must handle a large glucose and electrolyte burden, and this is where most adverse effects arise.

Step 2: The heavy sugar content commonly causes high blood glucose when endogenous insulin cannot keep pace, marking hyperglycemia as a true complication.

Step 3: Electrolyte swings are equally typical, and potassium can rise to hyperkalemia (or fall) depending on the bag composition and kidney function, confirming the second listed effect.

Step 4: With both glucose and potassium derangements being established hazards, the combined choice a and b is correct. Additional well-known problems span fluid overload, raised urea, cholestatic liver injury, and micronutrient deficiencies.

a and b (Hyperglycemia and Hyperkalemia)

Quick Tip: Both a sugar problem and a potassium problem are classic metabolic hazards of TPN.

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146. Which is a premalignant lesion for carcinoma of the rectum?

- (A) Familial polyposis
- (B) Familial adenomatous polyposis (FAP)
- (C) Juvenile polyp
- (D) Adenomatous polyp

Correct Answer: (A) Familial polyposis

SOLUTION:

Step 1: Most rectal cancers evolve from adenomatous tissue, so the lesions with the greatest danger are those that flood the bowel with adenomas.

Step 2: The classic precancerous lesions are villous adenoma, ordinary adenomas, and familial polyposis. Familial polyposis is an inherited syndrome in which countless adenomatous polyps line the colon and rectum and almost inevitably turn malignant if the bowel is not removed, so it is the chosen answer.

Step 3: Be aware that option B, FAP, is simply the full name of the same familial polyposis disorder, so the two options describe one entity, and option A is taken as the key.

Step 4: Juvenile polyps are hamartomas with minimal cancer risk, and a lone adenomatous polyp, while premalignant, poses much less risk than the widespread familial syndrome.

Familial polyposis

Quick Tip: The inherited syndrome that carpets the bowel with polyps and almost always becomes cancer.

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147. Which are clinical or investigative features of intestinal obstruction?

- (A) Abdominal distension
- (B) Vomiting
- (C) Fluid level in X-ray more than 4
- (D) a and b

Correct Answer: (D) a and b

SOLUTION:

Step 1: Intestinal obstruction classically presents with the tetrad of colicky pain, vomiting, distension, and failure to pass flatus or stool. Among the listed choices, both distension and vomiting belong to this tetrad, confirming options A and B.

Step 2: The radiological cut-off in option C, more than 4 fluid levels, is unreliable, since small numbers of air-fluid levels occur even in normal individuals.

Step 3: Texts point out that 3 to 5 short fluid levels under 2.5 cm, often in the right lower quadrant, can appear without obstruction or ileus, and the figure that genuinely suggests obstruction is more than 5 air-fluid levels rather than more than 4.

Step 4: So distension and vomiting are valid features while the more than 4 fluid-level rule is not, making the combined option a and b the right answer.

a and b (Abdominal distension and Vomiting)

Quick Tip: Distension and vomiting are real signs; the X-ray fluid-level cut-off given here is unreliable.

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148. Carcinoma of the breast is least commonly seen in which quadrant?

- (A) Superior outer quadrant
- (B) Inferior outer quadrant
- (C) Subareolar region
- (D) Lower inner quadrant

Correct Answer: (D) Lower inner quadrant

SOLUTION:

Step 1: The key principle here is that the chance of a malignancy in a given breast region is proportional to how much breast parenchyma sits in that region.

Step 2: Working through the four choices by their accepted percentages: the upper outer quadrant dominates at roughly one half of all cancers, the central areolar zone accounts for about one fifth, the upper inner quadrant sits in the low teens, and the lower outer quadrant is in the high single digits.

Step 3: That leaves the lower inner quadrant, which carries the least glandular bulk and therefore records the smallest figure, around 3 to 5 percent.

Step 4: Because the question asks for the site where carcinoma is least seen, the answer is the lower inner quadrant.

Lower inner quadrant

Quick Tip: Think about which quadrant holds the smallest amount of glandular breast tissue.



149. Sistrunk's operation is used in the treatment of which of the following?

- (A) Parotid tumour
- (B) Thyroglossal fistula
- (C) Thyroglossal cyst
- (D) Both b and c

Correct Answer: (D) Both b and c

SOLUTION:

Step 1: A thyroglossal duct anomaly arises from the embryological tract along which the thyroid descends from the tongue base to the neck. The lesion may present as a midline cyst or, after infection and rupture, as a fistula.

Step 2: Both presentations are managed surgically by the Sistrunk technique, which removes the cyst or sinus together with the central body of the hyoid bone and the remaining tract up to the foramen cecum.

Step 3: Because the operation addresses both the cystic and the fistulous forms of the same condition, options b and c are each valid answers.

Step 4: The parotid choice is unrelated and is handled by parotidectomy, so the combined option covering both b and c is correct.

Both thyroglossal fistula and thyroglossal cyst

Quick Tip: This operation removes the central hyoid bone and the whole duct tract.



150. Which of the following nerves is commonly damaged during a McBurney's incision?

- (A) Subcostal nerve
- (B) 10th thoracic nerve
- (C) 11th thoracic nerve
- (D) Iliohypogastric nerve

Correct Answer: (D) Iliohypogastric nerve

SOLUTION:

Step 1: Open appendicectomy uses the grid-iron incision over McBurney's point in the right iliac fossa, splitting the three flat abdominal muscles along the direction of their fibres.

Step 2: The iliohypogastric nerve travels in the neurovascular plane between internal oblique and transversus abdominis at this level, so it lies squarely within the area being divided and is the structure most at risk.

Step 3: If this nerve is cut, the motor supply to the lower internal oblique and transversus is lost, the inguinal canal mechanism is weakened, and a right-sided inguinal hernia may follow.

Step 4: The subcostal nerve (T12) and the T10 and T11 nerves supply skin and muscle at higher abdominal levels and are out of the operative field, leaving the iliohypogastric nerve as the answer.

Iliohypogastric nerve

Quick Tip: Which nerve runs between internal oblique and transversus at the level of the right iliac fossa?

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151. During functional endoscopic sinus surgery (FESS), the patient is usually placed in which position?

- (A) Trendelenburg
- (B) Lateral
- (C) Reverse Trendelenburg
- (D) Lithotomy

Correct Answer: (C) Reverse Trendelenburg

SOLUTION:

Step 1: The single biggest threat to a clear endoscopic view during sinus surgery is oozing of blood, so the surgeon and anaesthetist work together to minimise it, partly through patient posture.

Step 2: Tilting the table head-up, the reverse Trendelenburg posture, drops the hydrostatic pressure in the head and neck vessels, reducing both arterial inflow pressure and venous pooling at the sinuses.

Step 3: Less bleeding means a cleaner field, fewer complications and shorter operating time, which is why this head-elevated position is the routine choice for FESS.

Step 4: A head-down tilt would worsen congestion, and lateral or lithotomy positions belong to other specialties, so the correct posture is reverse Trendelenburg.

Reverse Trendelenburg

Quick Tip: You want the head above heart level to keep the sinus field dry.



152. In rheumatic fever, steroids are indicated when there is which of the following?

- (A) Carditis
- (B) Chorea
- (C) Subcutaneous nodules
- (D) All of the above

Correct Answer: (A) Carditis

SOLUTION:

Step 1: The decision to use steroids versus aspirin in rheumatic fever rests almost entirely on the presence and severity of cardiac inflammation.

Step 2: Carditis, particularly when accompanied by heart failure, is the clear indication for corticosteroids because they give the strongest anti-inflammatory effect on the inflamed myocardium and valves.

Step 3: Milder carditis without failure can be treated with either steroids or aspirin, steroids being favoured, and pure arthritis without cardiac signs is managed with aspirin alone over a course of roughly 12 weeks.

Step 4: Isolated chorea and subcutaneous nodules do not by themselves call for steroids, so the only firm steroid indication among the choices is carditis.

Carditis

Quick Tip: Steroids are reserved for the manifestation that threatens the heart.

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153. Nocturnal enuresis may be considered normal up to what age?

- (A) 3 years
- (B) 4 years
- (C) 5 years
- (D) 6 years

Correct Answer: (D) 6 years

SOLUTION:

Step 1: Achievement of urinary continence is a developmental milestone, and a child is not labelled enuretic until they pass the age by which control is normally gained.

Step 2: For daytime control the accepted threshold is around 4 years, but the bladder takes longer to stay dry overnight.

Step 3: Night-time wetting remains within normal limits until about 6 years of age, after which continuing involuntary voiding during sleep is considered pathological nocturnal enuresis.

Step 4: Since the question asks the age up to which nocturnal enuresis is still normal, the correct cut-off is 6 years.

6 years

Quick Tip: Night-time control is expected later than daytime control.

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154. Which prostaglandin analogue is used to keep the ductus arteriosus patent in patent ductus arteriosus (PDA)?

- (A) Anaprostone
- (B) Misoprostol
- (C) Danaprostone
- (D) PGE-2

Correct Answer: (B) Misoprostol

SOLUTION:

Step 1: Whether you want the ductus arteriosus open or closed determines the drug class. To hold the duct open in duct-dependent lesions, a prostaglandin E1 analogue is given because PGE-1 directly dilates ductal tissue.

Step 2: The PGE-1 agents used clinically for this are alprostadil and misoprostol. Of the listed choices, misoprostol fits this role, so it is the answer.

Step 3: By contrast, to shut a patent duct in a premature baby, prostaglandin synthesis inhibitors like indomethacin or ibuprofen are used, which is the reverse pharmacological action.

Step 4: The remaining options, anaprostone, danaprostone and PGE-2, are not the recognised analogues for maintaining patency, confirming misoprostol as correct.

Misoprostol

Quick Tip: A PGE-1 analogue keeps the duct open; misoprostol and alprostadil are the examples.

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155. In which of the following conditions is differential cyanosis found?

- (A) VSD with reversal of shunt
- (B) PDA with reversal of shunt
- (C) ASD with reversal of shunt
- (D) Tetralogy of Fallot

Correct Answer: (B) PDA with reversal of shunt

SOLUTION:

Step 1: The clue here is the word differential. A pink upper body with a blue lower body is only possible when impure blood is delivered selectively to the descending aorta after the great vessels to the head and arms have already branched off.

Step 2: The patent ductus arteriosus joins the pulmonary artery to the aorta just past the left subclavian artery. Normally flow is left to right. Once pulmonary pressures climb high enough to reverse the shunt, venous blood crosses into the post-subclavian aorta and travels only to the trunk and legs.

Step 3: Therefore the toes look blue and clubbed while the fingers and lips remain rosy. Septal defects (VSD, ASD) cause complete intracardiac mixing and TOF produces right-to-left shunting at the ventricular level, so all four limbs share the same colour in those lesions.

PDA with reversal of shunt

Quick Tip: Think of a shunt sited distal to the head and arm vessels.

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156. Treatment of bronchiolitis includes all except:

- (A) Macrolides
- (B) Humid oxygen
- (C) Bronchodilator
- (D) All of the above

Correct Answer: (A) Macrolides

SOLUTION:

Step 1: Bronchiolitis is the inflammation of the smallest airways in infants and is driven by viruses, RSV being the leading culprit. The question asks which listed option does NOT belong to its treatment.

Step 2: Supportive care is the backbone of therapy. Humidified oxygen relieves hypoxia and bronchodilator nebulizations are commonly trialled to open the airways, so both of those are genuine treatment measures.

Step 3: Antibiotics, including macrolides, target bacteria and therefore offer nothing against a viral infection. They are reserved only for proven bacterial superinfection. That leaves macrolides as the odd one out.

Macrolides

Quick Tip: Bronchiolitis is a viral disease, so think about which drug class is useless.

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157. Which of the following is best for transport of the newborn with maintenance of warm temperature?

- (A) Kangaroo Mother Care (KMC)
- (B) Transport incubator
- (C) Thermacol box
- (D) Hot bottle

Correct Answer: (A) Kangaroo Mother Care (KMC)

SOLUTION:

Step 1: The goal during newborn transfer is to avoid hypothermia, which is dangerous for neonates. We want a heat source that is constant, safe and does not depend on equipment.

Step 2: Holding the infant skin to skin on a parent's chest, the kangaroo position, gives a steady supply of body warmth. The mother is preferred, but the father can also provide it if she cannot accompany the baby.

Step 3: Compared with an incubator that needs electricity, a passively insulating thermacol box, or a hot water bottle that can scald, the kangaroo method wins on safety and availability.

Kangaroo Mother Care (KMC)

Quick Tip: The best method needs no electricity and uses the parent's body heat.

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158. Features of hypothyroidism in infancy include the following except:

- (A) Premature closure of posterior fontanelle
- (B) Coarse facies
- (C) Umbilical hernia
- (D) Constipation

Correct Answer: (A) Premature closure of posterior fontanelle

SOLUTION:

Step 1: In a baby with an underactive thyroid, everything runs slow, including skeletal development. A delayed bone age means the cranial sutures and

fontanelles stay open longer than expected.

Step 2: The reduced metabolic drive produces the typical picture of coarse features, an umbilical hernia from a lax abdominal wall, and stubborn constipation due to slow gut motility. All of these are true findings.

Step 3: Since the posterior fontanelle actually shows late closure rather than early closure, the statement about premature closure is false and is the answer to this except-type question.

Premature closure of posterior fontanelle

Quick Tip: Hypothyroidism delays bone maturation, so fontanelles do the opposite of closing early.

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159. Features of Refsum disease are all except:

- (A) Ataxia
- (B) CCF
- (C) Ichthyosis
- (D) Retinitis pigmentosa

Correct Answer: (B) CCF

SOLUTION:

Step 1: Refsum disease arises when phytanic acid cannot be broken down because the peroxisomal enzyme phytanoyl-CoA hydroxylase is faulty. The stored phytanic acid damages several organ systems.

Step 2: Remember the picture by the eyes, nerves, brain and skin: night blindness from retinitis pigmentosa, peripheral neuropathy, cerebellar ataxia and ichthyosis. Three of the four listed options (ataxia, ichthyosis, retinitis pigmentosa) sit

squarely in this group.

Step 3: Congestive cardiac failure is not part of the core syndrome, so it is the odd option out for this except question.

CCF

Quick Tip: Recall the eyes-nerves-brain-skin tetrad of this phytanic acid disorder.

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160. Diagnostic sign of a fracture:

- (A) Abnormal mobility at fracture site
- (B) Pain at the fracture site
- (C) Tenderness
- (D) Swelling

Correct Answer: (A) Abnormal mobility at fracture site

SOLUTION:

Step 1: When confirming a fracture, doctors look for findings that can be explained by nothing other than a broken bone. These are called pathognomonic or unfailing signs.

Step 2: If a limb bends or moves at a spot that has no joint, the bone must be discontinuous. This abnormal mobility, along with crepitus (a grating sensation of bone ends), points directly to a fracture.

Step 3: Swelling, pain and simple tenderness can be produced by many injuries such as contusions and ligament tears, so they cannot clinch the diagnosis. The standout diagnostic sign here is abnormal mobility.

Abnormal mobility at fracture site

Quick Tip: Which sign can only occur if the bone is actually broken?

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161. For a fracture of the proximal forearm, the cast position is:

- (A) Pronated flexion
- (B) Neutral position
- (C) Supinated position
- (D) Position does not matter

Correct Answer: (C) Supinated position

SOLUTION:

Step 1: The correct cast position for a forearm fracture is chosen by the level of the break, because the deforming muscle forces differ along the radius and ulna.

Step 2: In a fracture of the proximal third, the proximal fragment is pulled into supination by the biceps and supinator muscles. The plaster must therefore place the whole forearm in supination so the lower fragment lines up with the upper one.

Step 3: The rule descends down the forearm: middle third fractures are casted in mid pronation and distal third fractures in full pronation. So for the proximal forearm the answer is the supinated position.

Supinated position

Quick Tip: Match the cast to the pull of biceps and supinator on the proximal fragment.

162. Block vertebrae are seen in which of the following conditions?

- (A) Paget's disease
- (B) Leukemia
- (C) Tuberculosis
- (D) Klippel-Feil syndrome

Correct Answer: (D) Klippel-Feil syndrome

SOLUTION:

Step 1: The question targets a developmental defect of segmentation. When the embryonic somites fail to divide, neighbouring vertebral bodies stay joined as one block, which is what radiologists call a block vertebra.

Step 2: Among the listed options, the disease defined by congenital fusion of several cervical vertebrae is Klippel-Feil syndrome. Its clinical picture of a webbed short neck with limited head turning directly points to vertebral non-segmentation.

Step 3: This anomaly often runs together with hemivertebrae, posterior arch fusion, and the VACTERL spectrum of malformations, reinforcing its congenital origin.

Step 4: Ruling out the rest: Pott's disease (TB) erodes the disc and bodies leading to acquired collapse, Paget's disease thickens the vertebral rim into a picture-frame look, and leukemia infiltrates marrow. None of these create a true congenital block vertebra.

Klippel-Feil syndrome

Quick Tip: Think of the syndrome with a short neck and congenitally fused cervical



163. Which of the following is a radiological sign in Perthes disease?

- (A) Epiphyseal calcification
- (B) Organized calcification
- (C) Lateral subluxation of femoral head
- (D) Restriction of abduction

Correct Answer: (C) Lateral subluxation of femoral head

SOLUTION:

Step 1: The disorder in question is a childhood osteonecrosis of the capital femoral epiphysis caused by interruption of its blood supply, known eponymously as Perthes disease.

Step 2: When the dead epiphysis collapses and broadens, the femoral head can no longer sit fully inside the socket and drifts outward. On a radiograph this lateral migration of the head is reported as lateral subluxation, a true imaging feature of the disease.

Step 3: Supporting X-ray clues across the stages are a subchondral crescent fracture line, a dense then fragmented epiphysis, joint-space widening, and eventual flattening into coxa plana.

Step 4: Limited abduction belongs to the bedside examination rather than the film, and neither epiphyseal calcification nor organized calcification describes Perthes. Hence the imaging sign is lateral subluxation of the femoral head.

Lateral subluxation of femoral head

Quick Tip: The necrotic head collapses and drifts out of the acetabulum on imaging.

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164. Picture frame vertebra is seen in which of the following?

- (A) Paget's disease
- (B) Osteopetrosis
- (C) Osteoporosis
- (D) Ankylosing spondylitis

Correct Answer: (A) Paget's disease

SOLUTION:

Step 1: Identify the metabolic bone disease whose hallmark on plain films is a thickened bony border framing the vertebral body. That disease is Paget's disease, driven by overactive osteoclasts and compensatory osteoblastic bone laying.

Step 2: During the bone-forming stage, the cortex and both end plates of an affected vertebra become densely thickened while the central trabeculae remain coarser and relatively lucent. The outlined square produced is termed the picture frame vertebra.

Step 3: The same disease can turn a whole vertebra uniformly white (ivory vertebra) and produces the blade-of-grass lytic front in long bones plus cotton wool patches in the skull.

Step 4: Excluding others: osteopetrosis gives the sandwich or rugger-jersey spine, simple osteoporosis empties the body leaving a faint cortex, and ankylosing spondylitis squares the corners and bridges with syndesmophytes. So the picture frame vertebra belongs to Paget's disease.

Paget's disease

Quick Tip: The remodelling disease that also gives ivory vertebra and cotton wool skull.

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165. All of the following are common sites of primary tumour for bone metastasis EXCEPT:

- (A) Breast
- (B) Prostate
- (C) Brain
- (D) Lung

Correct Answer: (C) Brain

SOLUTION:

Step 1: The stem asks which organ is NOT a usual origin of cancer that seeds the skeleton. Skeletal metastases are the most common bone malignancy and travel mainly via blood.

Step 2: The five well-known bone-seeking primaries are breast, lung, thyroid, kidney and prostate. Breast tops the list overall and prostate leads in men, so options of breast, prostate and lung all qualify as common sources.

Step 3: Primary brain tumours behave very differently. They tend to stay within the cranial vault and only exceptionally spread to bone, so the brain does not belong among common primaries for bone metastasis.

Step 4: Eliminating the bone-seeking primaries leaves the brain as the odd one out, which is exactly the answer the EXCEPT format requires.

Brain

Quick Tip: Recall the BLT-KP primaries; the central nervous system primary is the odd one.

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166. Which arthritis causes NO periosteal reaction?

- (A) Psoriatic arthritis
- (B) Reactive arthritis
- (C) Neuropathic arthritis
- (D) Rheumatoid arthritis

Correct Answer: (D) Rheumatoid arthritis

SOLUTION:

Step 1: The task is to find the arthritis that does not stimulate the periosteum to form new bone, a key radiographic discriminator between inflammatory arthritides.

Step 2: Three of the choices are classic producers of periostitis: psoriatic arthritis with its shaggy new bone, reactive arthritis from the same seronegative family, and neuropathic (Charcot) joints that show exuberant bone reaction.

Step 3: By contrast, rheumatoid arthritis erodes rather than builds bone. Its radiology shows periarticular osteoporosis, symmetric marginal erosions and uniform joint space loss, with a conspicuous absence of periosteal new bone.

Step 4: Removing the three periostitis-positive options leaves rheumatoid arthritis as the arthritis with no periosteal reaction.

Rheumatoid arthritis

Quick Tip: The symmetric erosive seropositive arthritis builds no new periosteal bone.

167. A short fourth metacarpal is a feature of which condition?

- (A) Hyperparathyroidism
- (B) Acromegaly
- (C) Pseudohypoparathyroidism
- (D) Scleroderma

Correct Answer: (C) Pseudohypoparathyroidism

SOLUTION:

Step 1: The clue is brachymetacarpia of the fourth ray, the metacarpal sign, where the fourth metacarpal head sits proximal to the line drawn across the fourth and fifth heads.

Step 2: The endocrine condition classically linked to this is pseudohypoparathyroidism, in which target tissues fail to respond to PTH. Its Albright hereditary osteodystrophy phenotype includes a round face, short stature and shortened metacarpals.

Step 3: A short fourth metacarpal is also catalogued in pseudopseudohypoparathyroidism, Turner syndrome, prior trauma or infection, hereditary multiple exostoses and chondroectodermal (Ellis-van Creveld) dysplasia.

Step 4: Hyperparathyroidism instead resorbs bone subperiosteally and at the tufts, while scleroderma produces tuft resorption with calcinosis. Neither gives a short metacarpal, so the answer is pseudohypoparathyroidism.

Pseudohypoparathyroidism

Quick Tip: Think of PTH resistance and the Albright hereditary osteodystrophy

phenotype.

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168. Ovarian reserve is best indicated by which of the following?

- (A) LH
- (B) FSH
- (C) LH/FSH ratio
- (D) Estrogen

Correct Answer: (B) FSH

SOLUTION:

Step 1: The question seeks the best biochemical pointer to how many viable eggs an ovary still holds, that is its ovarian reserve, which falls with advancing age.

Step 2: Early follicular phase FSH (drawn on day 2 to 3) is the traditional answer. When the primordial follicle store shrinks, ovarian inhibin B and estradiol drop, releasing the pituitary from negative feedback and pushing FSH upward, so an elevated day 3 FSH marks a low reserve.

Step 3: The clomiphene citrate challenge test refines this by giving clomiphene from day 5 to 9 and rechecking FSH on day 10 to expose borderline cases, while inhibin B and antral follicle counts serve as adjuncts.

Step 4: Estrogen, LH and the LH/FSH ratio do not reliably grade reserve (the ratio is a PCOS clue). Hence, of the given options, FSH best indicates ovarian reserve.

FSH

Quick Tip: The day 3 gonadotropin that rises as the follicle pool falls.



169. Oligomenorrhoea means?

- (A) Cycle < 20 days
- (B) Cycle more than 45 days
- (C) Cycle more than 28 days
- (D) Cycle more than 35 days

Correct Answer: (D) Cycle more than 35 days

SOLUTION:

Step 1: The word oligomenorrhoea is built from oligo, meaning few or scanty, so it points to menses that occur too rarely rather than too heavily or too frequently.

Step 2: A regular menstrual cycle repeats every 21 to 35 days. The diagnostic threshold for calling a cycle infrequent is when the gap stretches past the 35 day mark.

Step 3: Using this rule, any interval greater than 35 days (and up to 6 months) is labelled oligomenorrhoea, which directly matches the option stating cycle more than 35 days.

Step 4: Short cycles below 20 days are the opposite problem (polymenorrhoea), 28 days lies comfortably inside the normal window, and 45 days, while technically infrequent, is not the conventional boundary tested in exams.

Cycle more than 35 days

Quick Tip: Think of the upper limit of a normal cycle and what lies just beyond it.



170. Trial of labour in previous caesarean section can be done in?

- (A) Placenta previa type III
- (B) Previous two classical caesarean section
- (C) Suspected CPD
- (D) Previous caesarean section with adequate pelvis

Correct Answer: (D) Previous caesarean section with adequate pelvis

SOLUTION:

Step 1: Allowing a woman with a uterine scar to labour is only justified when the chance of the scar giving way is small and nothing new blocks a vaginal delivery.

Step 2: The classic green light is a roomy, adequate pelvis after a single lower segment scar performed for a cause that will not recur. That description matches previous caesarean section with adequate pelvis.

Step 3: Each of the other choices is a red flag. A type III placenta previa physically covers most of the cervical opening and demands abdominal delivery.

Step 4: Two prior classical incisions place the thin, poorly healing upper segment under labour stress and invite rupture, while a pelvis suspected of disproportion guarantees obstruction. Hence none of these permit a trial of labour.

Previous caesarean section with adequate pelvis

Quick Tip: Which option describes a favourable factor rather than a contraindication?

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171. Type of suture used in complete perineal tear is?

- (A) Catgut
- (B) Silk
- (C) Vicryl
- (D) Vicryl and catgut

Correct Answer: (D) Vicryl and catgut

SOLUTION:

Step 1: When a tear is complete it breaches the anorectal wall, the sphincter and the perineal muscles, so the surgeon rebuilds each plane separately with a stitch suited to that tissue.

Step 2: After clearing scar tissue and refreshing the rectal margins, the mucosa and submucosa of the rectum and anus are brought together with vicryl.

Step 3: The muscular layer, the perineal body and levator ani, is reconstructed with catgut, and the superficial tissues are again closed with vicryl, so the repair as a whole relies on both vicryl and catgut.

Step 4: Picking only catgut or only vicryl ignores the layered technique, and silk is rejected outright because being non-absorbable it persists and predisposes to sinus and infection in this contaminated area.

Vicryl and catgut

Quick Tip: A layered repair of different tissues needs more than one absorbable material.



172. Red degeneration of fibroid is seen in?

- (A) Early pregnancy
- (B) Mid pregnancy
- (C) Puerperium
- (D) Nulliparous women

Correct Answer: (B) Mid pregnancy

SOLUTION:

Step 1: In red degeneration a fibroid undergoes haemorrhagic infarction because its enlarging mass can no longer be perfused by its limited vessels, giving a deep red, fishy smelling cut surface.

Step 2: The growth spurt that triggers this is most marked during the middle and later part of pregnancy, so red degeneration is typically a mid pregnancy event.

Step 3: The woman complains of sudden pain and tenderness localised to the swelling, sometimes with a slight temperature and white cell rise, and the standard approach is supportive care since it resolves on its own.

Step 4: The very early weeks lack sufficient fibroid enlargement, the puerperium involves shrinking rather than expanding tissue, and nulliparity merely predisposes to fibroids without dictating the timing of this change.

Mid pregnancy

Quick Tip: Link it to the time of fastest fibroid growth during gestation.

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173. Percentage of ectopic pregnancy seen in fallopian tube is?

- (A) 75%
- (B) 90%
- (C) 80%
- (D) 67%

Correct Answer: (B) 90%

SOLUTION:

Step 1: When a pregnancy implants anywhere other than the endometrial lining of the uterus it is ectopic, and the overwhelming majority settle in the oviduct.

Step 2: Surveys of ectopic sites show the fallopian tube hosting roughly 90 to 97 percent of them, so the figure closest to reality among the options is 90 percent.

Step 3: Breaking the tube down further, the ampullary part receives most implantations, the isthmus is next, and interstitial and fimbrial pregnancies are uncommon.

Step 4: Quoting 67, 75 or 80 percent falls short of the dominant tubal share, and ovarian, cervical and abdominal pregnancies collectively account for only a few percent.

90%

Quick Tip: The tube dominates ectopic sites, so pick the highest credible figure.

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174. Most common presenting symptom of TB endometritis is?

- (A) Abdominal pain
- (B) Infertility
- (C) Amenorrhoea
- (D) Vaginal discharge

Correct Answer: (B) Infertility

SOLUTION:

Step 1: Tuberculosis of the endometrium is part of female genital TB, which characteristically descends from infected tubes after haematogenous seeding from a primary site such as the lung.

Step 2: Among all the ways this disease announces itself, the inability to conceive is the dominant presentation, seen in roughly one third to two thirds of affected women, so the answer is infertility.

Step 3: The fertility failure stems from tubal scarring and occlusion, and from an endometrium so damaged that even open tubes cannot support a pregnancy.

Step 4: Pain, scanty or absent periods and abnormal discharge are recognised features but appear less often, so they rank below infertility as the chief complaint.

Infertility

Quick Tip: Genital TB damages tubes and endometrium, so what consequence brings the patient in?



175. A female with hirsutism, amenorrhoea and obesity. Diagnosis?

- (A) PCOD
- (B) Ovarian tumor
- (C) Androgen insensitivity syndrome
- (D) Turner syndrome

Correct Answer: (A) PCOD

SOLUTION:

Step 1: Putting together unwanted coarse hair, irregular or absent menses and weight gain in a young woman points strongly to a single common endocrine disorder of the ovary.

Step 2: That disorder is polycystic ovarian disease, driven by raised androgens and failure to ovulate, frequently accompanied by insulin resistance, which neatly explains the whole symptom cluster.

Step 3: A hormone producing ovarian tumour would behave aggressively with fast virilisation and very high androgen levels, not the chronic, gradual pattern described here.

Step 4: Androgen insensitivity gives a hairless phenotypically female body in a 46,XY person, and Turner syndrome presents with short stature and streak gonads, so neither matches a hirsute obese woman with amenorrhoea.

PCOD

Quick Tip: A common reproductive age triad of excess hair, irregular periods and weight gain.

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176. A young sexually active female presents with intense pruritus and a watery vaginal discharge. A wet-mount smear is examined. What does the smear most likely show?

- (A) *Trichomonas vaginalis*
- (B) *Candida vaginitis*
- (C) *Gardnerella vaginalis*
- (D) HIV

Correct Answer: (A) *Trichomonas vaginalis*

SOLUTION:

Step 1: Map the symptoms. Marked itching plus a runny, watery discharge in a sexually active young woman is the textbook presentation of a *Trichomonas vaginalis* infection (a sexually transmitted protozoal vaginitis).

Step 2: Use the diagnostic test cited. Microscopy of a saline wet smear reveals actively swimming, flagellated, ovoid trichomonads. Their characteristic darting movement confirms the diagnosis at the bedside.

Step 3: Eliminate the rest. Yeast (*Candida*) produces cheesy white plaques with hyphae on KOH; *Gardnerella* causes an odorous gray discharge with clue cells and little itching; HIV produces no specific finding on a vaginal smear and is diagnosed serologically, so none of these fits a pruritic watery smear-positive picture.

Step 4: Hence the answer is *Trichomonas vaginalis*.

Trichomonas vaginalis

Quick Tip: Itching plus watery (frothy) discharge with motile flagellates on wet smear.



177. Which hormone is most responsible for the development of acne?

- (A) Estrogen
- (B) Thyroid hormone
- (C) Testosterone
- (D) Gonadotropins

Correct Answer: (C) Testosterone

SOLUTION:

Step 1: Identify the target organ. Acne begins in the sebaceous (oil) gland, and the gland that is exquisitely sensitive to androgenic hormones.

Step 2: Link hormone to effect. Testosterone is converted in the skin to dihydrotestosterone, which drives excess sebum secretion and plugging of follicular openings, producing comedones that progress to inflammatory papules and pustules.

Step 3: Clinical correlation. Acne classically erupts at puberty when androgen levels rise and worsens in hyperandrogenic conditions, confirming testosterone as the culprit.

Step 4: Rule out alternatives. Estrogen suppresses sebaceous activity (basis of hormonal acne therapy), thyroid hormone is unrelated, and gonadotropins influence acne only by way of stimulating androgen production, not directly.

Testosterone

Quick Tip: An androgen that drives sebaceous gland activity and flares acne at puberty.

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178. Nikolsky's sign is seen in which of the following conditions?

- (A) Pemphigus
- (B) Herpes zoster
- (C) Bullous impetigo
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: Define the sign. Nikolsky's sign refers to easy dislodgement of the upper epidermis with gentle sliding pressure, reflecting a weak intra-epidermal or sub-epidermal junction.

Step 2: List positive disorders. The sign appears in pemphigus vulgaris, toxic epidermal necrolysis, Stevens-Johnson syndrome, staphylococcal scalded skin syndrome, bullous impetigo, herpes simplex and varicella-zoster blistering, epidermolysis bullosa and bullous lichen planus.

Step 3: Match to options. Pemphigus, bullous impetigo and herpes zoster are all on this list, so no single choice is exclusive.

Step 4: Therefore the inclusive answer is correct.

All of the above

Quick Tip: Skin slides off with pressure due to loss of epidermal cohesion - seen across many blistering diseases.

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179. An ulceronecrotic nodule is characteristically seen in which type of leprosy?

- (A) Lucio leprosy
- (B) Lepromatous leprosy
- (C) Indeterminate leprosy
- (D) Histoid leprosy

Correct Answer: (A) Lucio leprosy

SOLUTION:

Step 1: Recognise the phenomenon. An ulcerating, necrotic skin lesion in leprosy points to the Lucio phenomenon, a vasculonecrotic type-2 reaction.

Step 2: Tie it to its variant. This reaction is specific to Lucio leprosy, the diffuse lepromatous form prevalent in Mexico, producing tender red plaques on the limbs that necrose into black eschars and leave persistent leg ulcers.

Step 3: Contrast competitors. Indeterminate leprosy is an early macular form with anaesthesia and no necrosis; histoid leprosy forms firm shiny nodules that rarely ulcerate. Neither matches an ulceronecrotic nodule.

Step 4: Hence the correct choice is Lucio leprosy.

Lucio leprosy

Quick Tip: Necrotic ulcers with black eschar on the legs - the Lucio phenomenon.

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180. All of the following are features of Behcet's syndrome EXCEPT:

- (A) Genital ulcers
- (B) Uveitis
- (C) Oral ulcers
- (D) Pyoderma gangrenosum

Correct Answer: (D) Pyoderma gangrenosum

SOLUTION:

Step 1: Recall the core of Behcet's disease. It is a multisystem vasculitic disorder hallmarked by a triple set of mucocutaneous and ocular lesions: mouth ulcers, genital ulcers and eye involvement.

Step 2: Check each option. Recurrent oral aphthae, genital ulcers and uveitis all belong to Behcet's and may be accompanied by skin lesions and a pathergy reaction.

Step 3: Spot the outlier. Pyoderma gangrenosum is linked to inflammatory bowel disease and arthritides rather than to Behcet's syndrome, so it does not belong here.

Step 4: The answer to this except-type question is pyoderma gangrenosum.

Pyoderma gangrenosum

Quick Tip: Behcet's triad is oral plus genital ulcers plus uveitis - one skin ulcer belongs to IBD instead.

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181. Schamberg's purpura is most characteristically seen on the:

- (A) Face
- (B) Feet and lower legs
- (C) Chest
- (D) Arms

Correct Answer: (B) Feet and lower legs

SOLUTION:

Step 1: Name the entity. Schamberg's purpura is the leading pigmented purpuric dermatosis, caused by leaky dermal capillaries depositing iron pigment in the skin.

Step 2: Picture the lesions. Tiny pinpoint purpuric spots described as cayenne-pepper specks appear on a brownish background.

Step 3: Pinpoint the location. These lesions cluster on the lower limbs, especially around the ankles and shins, and are usually symptomless, so the feet and lower legs are the classic site.

Step 4: Face, chest and arms are not typical, making feet the right choice.

Feet (lower legs)

Quick Tip: Cayenne-pepper purpuric macules around the ankles and shins.

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182. Ether was first publicly used as a surgical anaesthetic by:

- (A) Priestley
- (B) Morton
- (C) Wells
- (D) Simpson

Correct Answer: (B) Morton

SOLUTION:

Step 1: Frame the history. The question asks who first showed ether working as a surgical anaesthetic in public.

Step 2: Recall the milestone. In 1846 the dentist William T. G. Morton

anaesthetised a patient with ether before an audience at Massachusetts General Hospital, the event that launched modern anaesthesia.

Step 3: Separate the others. Priestley is tied to discovering nitrous oxide, Wells to using nitrous oxide for dentistry, and Simpson to bringing chloroform into obstetric practice - none of them to the first ether demonstration.

Step 4: The correct name is Morton.

Morton

Quick Tip: An American dentist who demonstrated ether in 1846.

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183. In ophthalmology, a patient is allergic to amino-ester local anaesthetics. Which agent can be safely used instead?

- (A) Cocaine
- (B) Procaine
- (C) Prilocaine
- (D) Bupivacaine

Correct Answer: (C) Prilocaine

SOLUTION:

Step 1: The key fact is the ester versus amide split of local anaesthetics. Allergy almost always belongs to the ester family, so the management is to switch to an amide.

Step 2: A simple memory trick: amide agents carry two letter *i* in their name (pri locaine, lidocaine, bupivacaine), whereas esters have only one. Applying this, prilocaine and bupivacaine are amides while cocaine, procaine and tetracaine are esters.

Step 3: Esters are cleaved by plasma esterases into para-aminobenzoic acid, the molecule responsible for hypersensitivity. Amides bypass this pathway through hepatic amidase metabolism, so they do not provoke the same allergic response.

Step 4: Therefore in an ester-allergic eye patient, an amide such as prilocaine is appropriate. Cocaine, procaine and tetracaine remain contraindicated.

Prilocaine (an amide local anaesthetic)

Quick Tip: Switch from ester to amide; amides carry two letter i in their name.

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184. Which of the following intravenous anaesthetic agents is safe even if accidentally injected intra-arterially?

- (A) Thiopentone
- (B) Propofol
- (C) Midazolam
- (D) Methohexitone

Correct Answer: (B) Propofol

SOLUTION:

Step 1: The question tests which induction agent will not harm the artery if the cannula is mistakenly placed intra-arterially instead of intravenously.

Step 2: Agents that cause damage share a common feature - they either are strongly alkaline and crystallise (the barbiturates thiopentone and methohexitone) or belong to the high-risk list (benzodiazepines like midazolam). Other notorious offenders include phenothiazines, narcotics and tubocurarine.

Step 3: Propofol is formulated as a lipid emulsion at near-physiological pH and

has been documented in standard anaesthesia texts to cause no vascular injury after intra-arterial or extravascular injection. Etomidate behaves similarly.

Step 4: Comparing the four choices, three carry a real risk of arterial damage and ischaemia, leaving propofol as the agent that is safe.

Propofol

Quick Tip: Barbiturates and benzodiazepines damage arteries; the lipid-emulsion induction agent does not.

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185. Which inhalational anaesthetic agent is contraindicated in renal failure?

- (A) Isoflurane
- (B) Desflurane
- (C) Halothane
- (D) Methoxyflurane

Correct Answer: (D) Methoxyflurane

SOLUTION:

Step 1: Renal safety of a volatile agent depends on how much it is broken down to fluoride. The greater the fluoride load, the higher the risk to the kidney.

Step 2: Rank the agents by metabolism. Desflurane is almost inert, isoflurane is minimally metabolised, and halothane is metabolised to a modest degree but causes hepatic rather than fluoride-related renal injury. Methoxyflurane sits at the extreme end, being very extensively metabolised.

Step 3: Its breakdown, including metabolism within the kidney itself, liberates inorganic fluoride that injures the renal tubules. The result is a characteristic high-output renal failure, and the drug is also associated with hepatotoxicity.

Step 4: For this reason methoxyflurane is the agent to avoid in renal failure, while the other three remain acceptable from a renal standpoint.

Methoxyflurane

Quick Tip: Think of the volatile agent whose extensive metabolism releases nephrotoxic fluoride.

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186. High spinal anaesthesia is associated with which of the following haemodynamic changes?

- (A) Decreased blood pressure and decreased heart rate
- (B) Increased blood pressure and decreased heart rate
- (C) Decreased blood pressure and increased heart rate
- (D) Increased blood pressure and increased heart rate

Correct Answer: (A) Decreased blood pressure and decreased heart rate

SOLUTION:

Step 1: The central mechanism is loss of sympathetic tone. A spinal block is essentially a chemical sympathectomy, and the height of the block decides how much of the sympathetic chain is silenced.

Step 2: Loss of vasomotor tone in the splanchnic and lower-body vessels causes pooling and a fall in systemic vascular resistance and preload, so arterial pressure drops. Hypotension is in fact the commonest intraoperative complication of spinal anaesthesia.

Step 3: When the level climbs above T4 it knocks out the cardioaccelerator fibres. With sympathetic input gone and vagal tone now unopposed, the heart slows, giving bradycardia rather than a compensatory tachycardia.

Step 4: Combining the two effects, the picture is hypotension plus bradycardia (and impaired respiration if it ascends to cervical roots). Hence both pressure and rate go down.

Decreased blood pressure and decreased heart rate

Quick Tip: High block knocks out the T1-T4 cardiac accelerators, so both BP and heart rate fall.

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187. The Doppler effect results from a change in which property of sound?

- (A) Amplitude of sound
- (B) Frequency of sound
- (C) Direction of sound
- (D) None of the above

Correct Answer: (B) Frequency of sound

SOLUTION:

Step 1: Picture a sound wave bouncing off a moving column of blood. The motion compresses or stretches the wave, altering how many cycles arrive at the probe each second, which is precisely the frequency.

Step 2: The probe transmits at a known frequency and listens for the echo. Comparing the transmitted and received frequencies gives the Doppler shift, the foundation of Doppler ultrasound.

Step 3: Flow toward the probe raises the echo frequency, flow away from it lowers the frequency. This shift is converted into a velocity reading, letting clinicians measure blood flow.

Step 4: Amplitude relates to loudness and direction to the path of travel, neither of which defines the Doppler phenomenon. The defining change is in frequency.

Frequency of sound

Quick Tip: Moving targets shift the echo pitch - it is a frequency change.

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188. In a patient with a high clinical suspicion of pulmonary thromboembolism, which is the best investigation?

- (A) D-dimer
- (B) CT angiography
- (C) Catheter angiography
- (D) Colour Doppler

Correct Answer: (B) CT angiography

SOLUTION:

Step 1: With a strong clinical suspicion of PE, the diagnostic algorithm moves straight to confirmatory imaging rather than to D-dimer, because a screening test cannot safely exclude disease in a high-probability patient.

Step 2: The modern workhorse is CT pulmonary angiography. Multidetector CT lets the whole lung be scanned in a single breath-hold, giving sub-millimetre resolution that exceeds invasive angiography and reveals even small peripheral emboli.

Step 3: Beyond confirming the clot, CT shows the right and left ventricles, so right ventricular enlargement can flag patients at far higher 30-day mortality. This dual diagnostic and prognostic value makes it the preferred first-line test.

Step 4: By comparison, catheter angiography is invasive and now reserved for

special cases, colour Doppler evaluates deep leg veins rather than the pulmonary tree, and D-dimer only screens low-risk patients. CT angiography wins.

CT angiography (CT pulmonary angiography)

Quick Tip: High suspicion needs a confirmatory test - CT pulmonary angiography, not D-dimer.

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189. For detecting pericardial calcification, which is the best investigation?

- (A) MRI
- (B) Transesophageal echocardiography
- (C) USG
- (D) CT scan

Correct Answer: (D) CT scan

SOLUTION:

Step 1: The target here is calcium in the pericardium. The ideal test is the one that makes calcium stand out most clearly, and that depends on how each modality handles dense mineral.

Step 2: CT relies on X-ray attenuation, and calcium is among the densest tissues, so it appears bright and sharply defined. With its high spatial resolution, CT readily maps even thin rims of pericardial calcification.

Step 3: Such calcification is a strong pointer to constrictive pericarditis when the clinical picture fits. MRI, by contrast, renders calcium as a dark signal void and is better suited to thickness and tissue characterisation, while echo and ultrasound are constrained by limited windows and shadowing.

Step 4: Weighing the options, CT clearly outperforms MRI, transesophageal echo

and USG for showing calcium.

CT scan

Quick Tip: Calcium loves X-rays - CT is the best test for pericardial calcification.

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190. Wireless capsule endoscopy is done to visualize which of the following conditions?

- (A) Esophageal varices
- (B) Gastric carcinoma
- (C) Crohn's disease
- (D) Ulcerative colitis

Correct Answer: (C) Crohn's disease

SOLUTION:

Step 1: Ask which listed disease lives where the ordinary endoscope cannot go. The small intestine is the blind spot of routine gastroscopy and colonoscopy, and WCE was designed exactly to film this segment.

Step 2: Among the four options, only Crohn's disease is a transmural inflammatory bowel disease that typically involves the small bowel and ileum. Therefore the capsule directly images its mucosal ulcers and skip areas, so *Crohn's disease* is the match.

Step 3: Eliminate the rest by location. Varices (esophagus) and gastric carcinoma (stomach) are upper GI and visible on a normal scope; ulcerative colitis is a colonic mucosal disease handled by colonoscopy.

Step 4: Remember the safety rule: a known or suspected stricture is a contraindication because the capsule may be retained, an event more frequent in

established disease.

Crohn's disease

Quick Tip: Which option is a small-bowel disease beyond the reach of a standard scope?

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191. Investigation of choice for whole body imaging in metastasis is

- (A) Magnetic Resonance Imaging
- (B) Angiography
- (C) Venography
- (D) CT Scan

Correct Answer: (A) Magnetic Resonance Imaging

SOLUTION:

Step 1: The question wants one modality that can sweep the whole body to hunt deposits. The ideal tool gives excellent tissue and marrow contrast while sparing the patient radiation.

Step 2: Whole-body **MRI** fits this perfectly. With a rolling table and rapid T2 turbo spin-echo plus 3D gradient-echo sequences, it images the body in stations and detects marrow and soft-tissue metastases with high accuracy.

Step 3: Rule out the others on principle: angiography and venography are targeted vessel studies, not body-wide surveys, and CT delivers a heavy cumulative radiation load with poorer marrow contrast for this purpose.

Magnetic Resonance Imaging

Quick Tip: Pick the radiation-free modality with the best soft-tissue and marrow contrast.

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192. The term Psychiatry was coined by?

- (A) Moral
- (B) Johann Reil
- (C) Bleuler
- (D) Pinel

Correct Answer: (B) Johann Reil

SOLUTION:

Step 1: Trace the term to its inventor. Psychiatry as a named medical discipline first appears in the early nineteenth century.

Step 2: The credit belongs to *Johann Christian Reil*, who introduced the word in 1808 to describe the medicine of the mind.

Step 3: Distinguish the others: Bleuler is tied to schizophrenia and the four A's, while Pinel pioneered humane moral treatment of asylum patients. Neither coined psychiatry.

Johann Reil

Quick Tip: A German physician introduced this word in 1808.

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193. A patient is a known alcoholic since the last 20 years. He suddenly develops restless tremors and agitation. The diagnosis is?

- (A) Delirium tremens
- (B) Psychosis
- (C) Wernicke's encephalopathy
- (D) Korsakoff's syndrome

Correct Answer: (A) Delirium tremens

SOLUTION:

Step 1: Spot the trigger and the tempo. Two decades of drinking followed by a sudden onset of tremor and agitation points straight to alcohol withdrawal, where the brain rebounds into overexcitation once alcohol is stopped.

Step 2: The most dangerous and florid form of this is *delirium tremens*, classically appearing within a few days of the last drink with shaking, restlessness, clouded sensorium, and surging autonomic signs.

Step 3: Cross off the rest: Wernicke gives an eye-movement, gait, and confusion triad from thiamine lack; Korsakoff is a lasting memory loss with confabulation; plain psychosis does not explain the withdrawal tremor.

Delirium tremens

Quick Tip: Sudden tremors and agitation in a chronic drinker means acute withdrawal.

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194. Bleuler's symptoms for schizophrenia are all except?

- (A) Loosening of association
- (B) Affect disturbances
- (C) Autism
- (D) Hallucinations

Correct Answer: (D) Hallucinations

SOLUTION:

Step 1: Recall Bleuler's framework. He split schizophrenia symptoms into fundamental and accessory groups, and the fundamental set is the famous quartet of A's.

Step 2: Match each option to the quartet: loosening of association is association disturbance, affect disturbance and autism are listed directly, so three options are fundamental symptoms.

Step 3: *Hallucinations* falls in the accessory category together with delusions and negativism, so it is the odd one out being asked for.

Hallucinations

Quick Tip: Recall the 4 A's; the listed item that is accessory, not fundamental, is the exception.

• • •

195. The neurotransmitter change in mania is

- (A) Increased dopamine
- (B) Decreased dopamine
- (C) Increased norepinephrine
- (D) Decreased norepinephrine

Correct Answer: (C) Increased norepinephrine

SOLUTION:

Step 1: Use the monoamine model of mood. Serotonin and norepinephrine drive the highs and lows of affect, so the direction of their change defines the state.

Step 2: Mania is the energized, overactive pole, and it correlates with a rise in noradrenergic tone. Thus *increased norepinephrine* is the change in mania.

Step 3: The mirror image is depression, where serotonin and norepinephrine both fall and serotonin depletion is most prominent. So the decreased norepinephrine choice describes depression, not mania.

Increased norepinephrine

Quick Tip: Mania is the high-energy pole; think which monoamine rises.

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196. Doppelganger is

- (A) Shadow following a person
- (B) Feeling of a double of oneself
- (C) Identification of a stranger as familiar
- (D) None of the above

Correct Answer: (B) Feeling of a double of oneself

SOLUTION:

Step 1: Translate the term. Doppelganger literally means double-goer, and in psychiatry it is the delusion of a subjective double.

Step 2: The patient holds the false belief that an exact copy of himself exists elsewhere. That belief is captured by the *feeling of a double of oneself*.

Step 3: Separate it from look-alikes: misidentifying an unknown person as someone familiar is a different delusional misidentification syndrome, and a trailing shadow is not the definition.

Feeling of a double of oneself

Quick Tip: The word means a double-goer; it is the delusion of a duplicate self.

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197. Suspiciousness is a characteristic feature of which personality disorder?

- (A) Paranoid personality disorder
- (B) Schizoid personality disorder
- (C) Schizotypal personality disorder
- (D) Anankastic personality disorder

Correct Answer: (A) Paranoid personality disorder

SOLUTION:

Step 1: Cluster A personality disorders (the odd or eccentric cluster) include paranoid, schizoid and schizotypal types. Among these the one defined by chronic distrust is paranoid personality disorder.

Step 2: Such a person constantly suspects deception and harm, questions the loyalty of friends, may wrongly doubt a spouse, and finds threatening intent in harmless comments. This guardedness pervades all relationships.

Step 3: Contrast this with the look-alikes. A schizoid individual is emotionally cold and prefers solitude but is not suspicious. A schizotypal individual displays eccentric ideas and magical thinking. The anankastic (obsessive-compulsive) type fixates on rules, lists and perfection. Only the paranoid type is built around suspicion.

Step 4: Matching the single feature of suspiciousness to its disorder gives the answer.

Paranoid personality disorder

Quick Tip: Think of the Cluster A disorder defined by pervasive distrust of others.

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198. Sleep walking is seen in which stage of sleep?

- (A) REM
- (B) Stage 1-2 NREM
- (C) Stage 2-3 NREM
- (D) Stage 3-4 NREM

Correct Answer: (D) Stage 3-4 NREM

SOLUTION:

Step 1: Parasomnias divide neatly by sleep phase. Arousal parasomnias such as somnambulism cluster in the deepest part of NREM, which is the slow-wave stages 3 and 4.

Step 2: Alongside walking in sleep, the same deep stage produces night terrors with screaming and autonomic arousal, bed wetting, teeth grinding and talking in sleep. A shared clue is poor recall of the episode afterwards.

Step 3: REM is the opposite end of the spectrum and is where dreaming, nightmares and narcolepsy-related events sit, so option REM is excluded. The lighter stages 1-2 and the 2-3 transition lack the deep slow-wave activity needed for somnambulism.

Step 4: Mapping the parasomnia to its phase confirms the deepest NREM stages.

Stage 3-4 NREM

Quick Tip: Somnambulism is a slow-wave (deep) sleep parasomnia.



199. Repressed information can be brought into the conscious mind by all of the following except?

- (A) Dream
- (B) Focused attention
- (C) Hypnosis
- (D) Somatic stimulation

Correct Answer: (B) Focused attention

SOLUTION:

Step 1: The question asks which technique fails to surface repressed content. Repression stores material in the unconscious, the deepest layer of Freud's model, beyond ordinary voluntary recall.

Step 2: Special techniques are needed to bypass the repressive barrier maintained by the preconscious. Recognised routes to the unconscious are hypnosis, dream analysis, automatic writing, somatic stimulation and EMDR.

Step 3: Focused or directed attention only works on preconscious material that is already near awareness. Because it stops at the repressive barrier and cannot dredge up truly repressed memories, it is the odd one out among the choices.

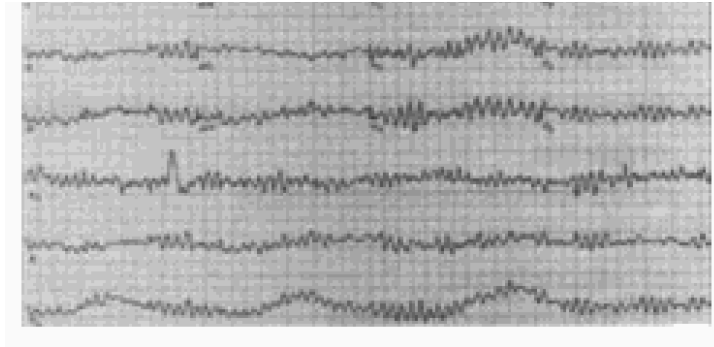
Step 4: Eliminating dream, hypnosis and somatic stimulation as valid retrieval methods leaves focused attention as the exception.

Focused attention

Quick Tip: Repressed memory sits in the unconscious; which option only reaches preconscious material?

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200.



Read the following ECG. It demonstrates which of the following?

- (A) SVT
- (B) WPW syndrome
- (C) Atrial fibrillation
- (D) Ventricular fibrillation

Correct Answer: (D) Ventricular fibrillation

SOLUTION:

Step 1: Approach the tracing by looking for organised waves. There are none: no clear P waves, no countable QRS complexes, just a continuously undulating, grossly irregular line at a very fast rate.

Step 2: Such total loss of coordinated ventricular depolarisation means the ventricles are merely quivering. Mechanically the heart cannot pump, so the patient is pulseless and in cardiac arrest, requiring immediate defibrillation.

Step 3: The distractors all retain some organisation. Supraventricular tachycardia is fast yet regular with narrow complexes. Wolff-Parkinson-White shows a delta wave and short PR. Atrial fibrillation keeps recognisable QRS complexes despite

an irregular ventricular response. The complete absence of QRS structure here rules them out.

Step 4: A disorganised quivering baseline with no discrete complexes is diagnostic of the lethal ventricular rhythm.

Ventricular fibrillation

Quick Tip: No organised QRS, chaotic quivering baseline, pulseless arrest rhythm.