

General Instructions

- (i) This booklet contains 293 questions, each provided with a complete, step-by-step solution.
- (ii) It comprises 293 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. Syndrome associated with posterior inferior cerebellar artery thrombosis:

- (A) Wallenberg syndrome
- (B) Medial medullary syndrome
- (C) Inferior alternating syndrome
- (D) Dejerine syndrome

Correct Answer: (A) Wallenberg syndrome

SOLUTION:

Step 1: Map the blood supply. The lateral medulla draws its supply from the PICA, the largest branch of the vertebral artery. A clot here starves the lateral wedge of the medulla. **Step 2:** Clinically this gives the classic lateral medullary picture - ipsilateral facial sensory loss, Horner sign, ataxia, dysphagia, with contralateral loss of pain and temperature over the body. The eponym for this is Wallenberg syndrome, first described in 1895. **Step 3:** Contrast with the medial medulla, supplied by the anterior spinal artery; its occlusion produces medial medullary syndrome, which carries the alternative names inferior alternating syndrome, hypoglossal alternating hemiplegia and Dejerine syndrome. Since the

question asks about PICA, all three medial names are excluded. **Step 4:** Therefore the only correct match for PICA thrombosis is the lateral medullary or Wallenberg syndrome.

Wallenberg syndrome

Quick Tip: PICA supplies the lateral medulla - think lateral medullary syndrome.

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2. Space of Disse is in:

- (A) Spleen
- (B) Lymph node
- (C) Liver
- (D) Bone

Correct Answer: (C) Liver

SOLUTION:

Step 1: Locate the anatomy. The space of Disse is a thin perisinusoidal channel sitting between the plates of liver cells and the endothelium lining the hepatic sinusoids. **Step 2:** Its function is exchange - it is filled with plasma that has filtered out of the leaky sinusoidal endothelium, and the brush border of hepatocyte microvilli reaches into it to absorb proteins and nutrients. **Step 3:** Stellate fat-storing cells also lie within this space and are key in hepatic fibrosis. **Step 4:** None of the other listed organs - spleen, lymph node or bone - has hepatocytes or hepatic sinusoids, so the space of Disse can only be the liver.

Liver

Quick Tip: It is the perisinusoidal space between hepatocyte and sinusoid.

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3. What are Gitter cells:

- (A) Macroglia
- (B) Modified macrophages in CNS
- (C) Astrocytes
- (D) Oligodendrocytes

Correct Answer: (B) Modified macrophages in CNS

SOLUTION:

Step 1: Trace the origin. After tissue injury in the brain, monocytes from blood (and some resident microglia) move in to clean up debris. **Step 2:** As they engulf the fatty breakdown products of damaged myelin, their cytoplasm fills with lipid droplets, giving a swollen, granular, foamy look - this lipid-laden scavenger is the Gitter cell, also called a foamy macrophage or compound granular corpuscle.

Step 3: Their job is clearance: they phagocytose myelin and cellular debris in lesions like infarcts and then drain off through perivascular spaces into blood or CSF. **Step 4:** This is a macrophage lineage cell, not a glial supporting cell, so the answer is modified macrophages in the CNS rather than macroglia, astrocytes or oligodendrocytes.

Modified macrophages in CNS

Quick Tip: Lipid-laden foamy phagocytes clearing myelin debris in the brain.

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4. Cholecystocaval line separates:

- (A) Right & Left liver lobe
- (B) Liver with Gall Bladder
- (C) Right Lobe of Liver with Gall Bladder
- (D) Left Lobe of Liver with Gall Bladder

Correct Answer: (A) Right & Left liver lobe

SOLUTION:

Step 1: Identify the landmarks named in the term. Cholecysto refers to the gall bladder fossa and caval refers to the groove for the inferior vena cava. Joining these two points draws a vertical plane through the liver. **Step 2:** This plane is the functional, or Cantlie, line. It does not follow the surface falciform ligament; instead it lies a little to the right of it on the upper surface. **Step 3:** The plane carves the liver into two physiologically distinct halves, each with its own portal pedicle and hepatic venous drainage, and these halves are about equal in size. **Step 4:** Hence the cholecystocaval line is the boundary between the functional right and left lobes of the liver.

Right and Left liver lobe

Quick Tip: Gall bladder fossa to IVC groove = Cantlie line, the functional lobar divide.

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5. Which of the following exocrine glandular ducts are not obstructed in cystic fibrosis:

- (A) Pancreas
- (B) Lung
- (C) Sweat gland
- (D) All of above

Correct Answer: (C) Sweat gland

SOLUTION:

Step 1: Split CF glands into two groups - mucous and serous. The CFTR defect makes mucous secretions thick and sticky, so the ducts of mucus glands clog. **Step 2:** Mucous-type involvement explains bronchiectasis in the lungs, pancreatitis with malabsorption from a blocked pancreatic duct, and obstructive jaundice from plugged bile ductules. **Step 3:** The sweat gland is a serous gland. Here the problem is not a mucus plug but failure to reabsorb chloride and sodium, so the sweat is salty while the duct itself remains open and unobstructed. **Step 4:**

Because the duct stays patent, sweat can be collected for the pilocarpine iontophoresis sweat chloride test. So among the choices, only the sweat gland duct escapes obstruction.

Sweat gland

Quick Tip: Serous sweat glands give salty sweat but the duct stays open.

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6. Boot shape of heart in TOF is due to:

- (A) Left atrial enlargement
- (B) Right atrial enlargement
- (C) Right ventricular hypertrophy
- (D) Biventricular hypertrophy

Correct Answer: (C) Right ventricular hypertrophy

SOLUTION:

Step 1: Link the X-ray to the pathology. In TOF, pulmonary stenosis forces the right ventricle to pump against high resistance, so its muscle wall thickens - right ventricular hypertrophy. **Step 2:** A hypertrophied right ventricle pushes the cardiac apex upward and outward, while the obstructed, underfilled pulmonary trunk leaves a concavity at the left heart border where the main pulmonary artery normally bulges. **Step 3:** The combination of an upturned apex and a scooped-out pulmonary bay gives the silhouette of a boot or wooden clog, the coeur en sabot. **Step 4:** The root cause of the upturned apex is the hypertrophied right ventricle, so the answer is right ventricular hypertrophy.

Right ventricular hypertrophy

Quick Tip: Upturned apex from a thick right ventricle gives the clog shape.



7. Which of the following structure is not derived from external oblique muscle:

- (A) Inguinal ligament
- (B) Lacunar ligament
- (C) Cooper ligament
- (D) Linea Semilunaris

Correct Answer: (D) Linea Semilunaris

SOLUTION:

Step 1: Group the three ligaments. Trace the lower edge of the external oblique aponeurosis: it rolls under to make the inguinal ligament, sends a fan medially to make the lacunar ligament, and continues laterally along the pubic pecten as the pectineal (Cooper) ligament. All three are continuations of one sheet of external oblique aponeurosis. **Step 2:** Now consider the linea semilunaris. This is a vertical tendinous crease at the lateral margin of the rectus abdominis, marking where the combined aponeuroses of external oblique, internal oblique and transversus abdominis fuse to enclose the rectus. **Step 3:** Because it depends on all three flat muscles rather than the external oblique by itself, the linea semilunaris stands apart from the ligament trio. **Step 4:** Therefore the odd one out, not derived from the external oblique, is the linea semilunaris.

Linea Semilunaris

Quick Tip: Three are folds of external oblique aponeurosis; the rectus-margin line is not.



8. Contralateral loss of pain and temperature sensation is due to injury to which tract?

- (A) Anterior spinothalamic tract
- (B) Lateral spinothalamic tract
- (C) Fasciculus gracilis
- (D) Fasciculus cuneatus

Correct Answer: (B) Lateral spinothalamic tract

SOLUTION:

Step 1: Localise the modality first. Sharp pain and thermal sensation travel in the lateral spinothalamic pathway, while the dorsal columns (*fasciculus gracilis* and *fasciculus cuneatus*) handle vibration, fine touch and joint position sense.

Step 2: The key feature of the spinothalamic system is early crossing. The axons decussate in the anterior white commissure of the cord within a couple of segments of entering, so the ascending tract on one side already represents the opposite half of the body.

Step 3: Therefore a lesion of the lateral spinothalamic tract on one side removes pain and temperature from the contralateral body below the lesion. A dorsal column lesion would instead give ipsilateral loss of proprioception, and the anterior spinothalamic tract relates to crude touch, so neither fits a contralateral pain-temperature loss.

Step 4: The single tract whose injury explains the finding is the lateral spinothalamic tract.

Lateral spinothalamic tract

Quick Tip: Which pain and temperature tract decussates within the spinal cord itself?



9. Ducts of Bellini are present in which organ?

- (A) Pancreas
- (B) Liver
- (C) Kidney
- (D) Salivary gland

Correct Answer: (C) Kidney

SOLUTION:

Step 1: Trace the renal tubular pathway to its endpoint. Filtrate passes through the proximal tubule, loop of Henle, distal tubule and collecting ducts, finally reaching the largest terminal ducts in the renal medulla.

Step 2: These terminal papillary ducts are the ducts of Bellini. They are the widest collecting channels and sit at the tip of the renal pyramid.

Step 3: They discharge urine through the sieve-like *area cribrosa* on the renal papilla into a minor calyx, confirming a purely renal location. The pancreas, liver and salivary glands have their own named ducts and none carry this eponym.

Step 4: The organ that contains the ducts of Bellini is the kidney.

Kidney

Quick Tip: These are the terminal papillary collecting ducts that open onto the renal papilla.

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10. Which structure is derived from the first pharyngeal arch?

- (A) Levator palatini
- (B) Buccinator
- (C) Stylohyoid
- (D) Anterior belly of digastric

Correct Answer: (D) Anterior belly of digastric

SOLUTION:

Step 1: Sort each option by its arch using the nerve rule. First arch muscles take the trigeminal nerve, second arch muscles take the facial nerve, and the levator palatini comes from a more caudal arch supplied by the vagus.

Step 2: Buccinator and stylohyoid are moved by the facial nerve, placing them firmly in the second arch. Levator palatini is not a trigeminal-supplied muscle, so it is excluded from the first arch.

Step 3: The anterior belly of digastric is innervated by the nerve to mylohyoid, a branch of the mandibular division (V_3) of the trigeminal nerve, which is the signature of a first arch muscle. This matches the question.

Step 4: The first pharyngeal arch derivative among the choices is the anterior belly of digastric.

Anterior belly of digastric

Quick Tip: First arch muscles are supplied by the trigeminal nerve; which option fits that?

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11. Which joint is involved in movement of the head from left to right (turning side to side)?

- (A) Atlanto-axial
- (B) Atlanto-occipital
- (C) C2-C3 joint
- (D) C3-C4 joint

Correct Answer: (A) Atlanto-axial

SOLUTION:

Step 1: Match each movement to its craniovertebral joint. The skull-to-C1 articulation gives nodding, while the C1-to-C2 articulation gives rotation. Side-to-side turning is rotation.

Step 2: The C1-C2 joint is the atlanto-axial joint, a pivot joint in which the dens

of the axis acts as the central peg. The ring of the atlas and the transverse ligament spin around this peg.

Step 3: Rotation here swings the face left and right, the classic NO gesture. The atlanto-occipital joint only flexes and extends (**YES** nodding), and the C2-C3 and C3-C4 joints are typical cervical facet joints that do not generate this dedicated rotation.

Step 4: Turning the head left to right is the function of the atlanto-axial joint.

Atlanto-axial joint

Quick Tip: The pivot around the dens of the axis lets you shake your head to say NO.

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12. What is the nerve supply of the submandibular gland?

- (A) Auriculotemporal nerve
- (B) Lingual nerve
- (C) Glossopharyngeal nerve
- (D) Inferior alveolar nerve

Correct Answer: (B) Lingual nerve

SOLUTION:

Step 1: Follow the salivary wiring. Parasympathetic fibres for the submandibular gland leave the superior salivatory nucleus, run with the facial nerve, and branch off as the chorda tympani.

Step 2: The chorda tympani then piggybacks onto the lingual nerve. The submandibular ganglion is suspended from the lingual nerve, and its postganglionic fibres pass straight into the gland, so clinically the lingual nerve is the relevant supply.

Step 3: Distinguish the parotid pathway, which uses glossopharyngeal fibres through the otic ganglion and is delivered by the auriculotemporal nerve. The inferior alveolar nerve is purely for the mandibular teeth and gingiva.

Step 4: Hence the nerve associated with the submandibular gland is the lingual nerve.

Lingual nerve

Quick Tip: The chorda tympani hitchhikes on this branch of the trigeminal to reach the gland.

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13. During parathyroid surgery, the parathyroid gland is most commonly implanted (autotransplanted) into which muscle?

- (A) Sartorius
- (B) Supinator
- (C) Deltoid
- (D) Brachioradialis

Correct Answer: (D) Brachioradialis

SOLUTION:

Step 1: Recall the surgical principle of parathyroid autotransplantation. The chosen muscle must be superficial, richly perfused, and reachable later without major surgery if the grafted tissue becomes overactive.

Step 2: The forearm brachioradialis satisfies all three conditions, which is why it is the classic and commonest recipient muscle, with the presternal area as an alternative.

Step 3: A forearm graft is also conveniently placed away from the original neck field, so any future re-exploration avoids dense neck scarring. The deltoid, sartorius and supinator are not standard parathyroid graft beds.

Step 4: The muscle used for parathyroid implantation is the brachioradialis.

Brachioradialis

Quick Tip: A superficial, well-vascularised forearm muscle is chosen so re-excision is easy.

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14. The right coronary artery arises from which structure?

- (A) Right aortic sinus
- (B) Left aortic sinus
- (C) Posterior coronary sinus
- (D) Anterior coronary sinus

Correct Answer: (A) Right aortic sinus

SOLUTION:

Step 1: Identify the three pockets above the aortic valve. Two of them are coronary sinuses and one is the non-coronary (posterior) sinus that supplies no coronary vessel.

Step 2: The right coronary sinus, positioned anteriorly, is the origin of the right coronary artery. For this reason the right aortic sinus and the anterior aortic sinus are the same structure.

Step 3: The left coronary artery springs from the left posterior sinus, while the so-called posterior or anterior coronary sinus options do not correctly describe a coronary artery origin. The coronary sinus on the heart surface is a venous channel, not an aortic sinus.

Step 4: The right coronary artery therefore originates from the right aortic sinus.

Right aortic sinus

Quick Tip: The right coronary artery comes off the anterior, also called right, sinus of Valsalva.

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15. Bainbridge reflex causes?

- (A) Bradycardia
- (B) Increased cardiac output
- (C) Decreased venous return
- (D) Increased heart rate

Correct Answer: (D) Increased heart rate

SOLUTION:

Step 1: Picture a sudden surge of blood returning to the right side of the heart. This stretches the right atrium and the great veins emptying into it.

Step 2: Specialised stretch receptors sitting in the right atrial wall sense this distension and send afferent signals up the vagus nerve to the cardiovascular centre in the medulla.

Step 3: The body answers with the atrial (Bainbridge) reflex, a positive feedback loop that speeds the heart up so the incoming volume is cleared quickly. The result is a faster heart rate.

Step 4: Slowing of the heart (bradycardia) belongs to the baroreflex, which reacts to high arterial pressure, not atrial stretch. A drop in venous return is actually the stimulus running backwards, and a rise in cardiac output is a knock-on effect rather than the reflex itself.

Hence the heart rate goes up.

Increased heart rate

Quick Tip: It is the atrial stretch reflex that speeds the heart when right atrial pressure rises.

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16. Golgi tendon organ is responsible for sensing?

- (A) Tension
- (B) Length
- (C) Pressure
- (D) Proprioception

Correct Answer: (A) Tension

SOLUTION:

Step 1: Think about where the receptor sits. The Golgi tendon organ is woven into the tendon right where it meets the muscle, lined up in series with the working muscle fibres.

Step 2: Anything placed in series carries the full pulling force passing through it. So whenever the muscle generates force, that force squeezes the GTO, and it reports back how much tension the muscle is producing, plus how fast that tension is changing.

Step 3: Contrast this with the muscle spindle, which runs parallel to the fibres and therefore tracks how long the muscle is, not how hard it pulls. That is why length is a spindle job, not a GTO job.

Step 4: Pressure detection is handled by skin receptors, and saying proprioception in general misses the point because the GTO has one clear modality. The GTO is the tension monitor.

Tension

Quick Tip: It lies in series with muscle fibres, so it reports the force the muscle generates.

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17. The hormone predominantly secreted after the 14th day acting on the endometrium is?

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

Correct Answer: (A) Progesterone

SOLUTION:

Step 1: Anchor the timeline. In a standard cycle, day 14 is ovulation day, so everything after it falls in the luteal half of the cycle.

Step 2: Once the egg is released, the leftover follicle transforms into the corpus luteum. Its signature product is progesterone, which converts the already-thickened lining into a secretory, nutrient-rich bed ready for implantation. Progesterone output climbs and reaches its high point near day 21.

Step 3: Before ovulation, estrogen was the star, building up the proliferative endometrium. After day 14 that role hands over to progesterone, so estrogen is the wrong pick for the post-ovulatory endometrial effect.

Step 4: The gonadotropins LH and FSH act on the ovary rather than directly on the uterine lining; LH peaks to cause ovulation and FSH ripens follicles early on. The endometrial driver after day 14 is progesterone.

Progesterone

Quick Tip: After ovulation the corpus luteum secretes the hormone that drives the secretory endometrium.

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18. Peripheral chemoreceptors respond to hypoxia using which channel?

- (A) Calcium channel
- (B) Sodium channel
- (C) Potassium channel
- (D) Chloride channel

Correct Answer: (C) Potassium channel

SOLUTION:

Step 1: Locate the sensor. Oxygen levels in the blood are read by the glomus (type I) cells of the carotid body, the front-line peripheral chemoreceptor.

Step 2: These cells keep a set of potassium channels open at rest, letting K^+ leak out and holding the membrane stable. A specific O_2 -sensitive K^+ channel is thought to be the actual oxygen detector.

Step 3: When oxygen falls, this K^+ channel shuts. With less K^+ leaving, the cell depolarises. That voltage change pries open calcium channels, Ca^{2+} floods in, and the glomus cell dumps neurotransmitter onto the sensory nerve, ramping up firing to the brainstem to boost ventilation.

Step 4: Although calcium entry is the trigger for transmitter release, it is a follow-on step, not the sensor. Sodium and chloride channels play no oxygen-sensing role here. The key channel inhibited by hypoxia is the potassium channel.

Potassium channel

Quick Tip: Hypoxia inhibits an O_2 -sensitive K^+ channel in glomus cells, depolarizing them.

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19. With increase in age, which of the following is true for the lungs?

- (A) Pulmonary compliance increases
- (B) Residual volume decreases
- (C) Mucociliary clearance increases
- (D) Fibrosis of interstitium decreases

Correct Answer: (A) Pulmonary compliance increases

SOLUTION:

Step 1: Start with what aging does to lung elastic tissue. The elastic fibres degrade and the alveolar air spaces widen, so the lung pushes back less when stretched.

Step 2: A lung with weaker recoil inflates more readily for a given pressure, which by definition means higher compliance. So pulmonary compliance rises in the elderly.

Step 3: The same loss of recoil traps air, pushing residual volume and functional residual capacity up rather than down, which knocks out the option claiming residual volume falls.

Step 4: Aging also blunts mucociliary clearance, weakening airway clearance instead of improving it, and the interstitial connective tissue does not melt away. So the only correct statement is the rise in lung compliance.

Pulmonary compliance increases

Quick Tip: Aging lungs lose elastic recoil, so they become easier to distend.

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20. Functional residual capacity is the volume of air in the lungs measured?

- (A) After normal inspiration
- (B) After normal expiration
- (C) After forceful expiration
- (D) After forceful inspiration

Correct Answer: (B) After normal expiration

SOLUTION:

Step 1: Recall the definition by its name: functional residual capacity is the air that functionally stays behind in the lungs during normal breathing.

Step 2: That leftover volume is what you have right after you let a quiet breath out without effort. At this resting point the lung's pull inward and the chest wall's pull outward cancel, setting the relaxed lung volume. It is the sum of expiratory

reserve volume and residual volume.

Step 3: So the measuring moment is the end of a normal, passive expiration, which matches the after normal expiration choice.

Step 4: Stopping after a normal inspiration measures a bigger volume, a forced full exhale leaves only residual volume, and a maximal inhale gives total lung capacity. None of these is FRC.

Note: the recall key letter printed for this item points to after normal inspiration, but the standard physiology definition (and the explanation text itself) places FRC at the end of passive expiration, so the medically correct choice is after normal expiration.

After normal expiration

Quick Tip: FRC is the resting lung volume left at the end of a quiet, passive breath out.

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21. Polyuria is defined as urine output greater than?

- (A) 70 ml/kg/day
- (B) 60 ml/kg/day
- (C) 50 ml/kg/day
- (D) 40 ml/kg/day

Correct Answer: (C) 50 ml/kg/day

SOLUTION:

Step 1: Translate the term. Polyuria simply describes passing too much urine, and the cut-off is usually expressed per kilogram of body weight per day.

Step 2: The recognised threshold is a daily output above 50 ml for every kilogram of body weight, so anything exceeding 50 ml/kg/day qualifies as polyuria.

Step 3: For a typical adult this works out to more than roughly 3 litres a day, the figure clinicians commonly use at the bedside, and the weight-based version simply scales that to body size.

Step 4: The higher numbers (70 and 60 ml/kg/day) sit above the true limit and

the lower number (40 ml/kg/day) sits below it, so none of them is the defining value. The correct figure is 50 ml/kg/day.

50 ml/kg/day

Quick Tip: The weight-based cut-off is urine output above 50 ml/kg/day.

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22. Tubuloglomerular feedback control is useful for the regulation of which one of the following?

- (A) GFR
- (B) Plasma sodium
- (C) Plasma volume
- (D) Determining tubular secretion

Correct Answer: (A) GFR

SOLUTION:

Step 1: The kidney protects its filtration rate using a built-in loop called tubuloglomerular feedback, so the variable being controlled is the glomerular filtration rate.

Step 2: A specialised patch of distal tubule epithelium, the macula densa, lies against the afferent arteriole inside the juxtaglomerular apparatus and continuously monitors the salt content of fluid passing by.

Step 3: If too much filtrate is being produced, the macula densa releases adenosine, which opens calcium channels and tightens the afferent arteriole, while angiotensin II tightens the efferent arteriole. The net effect dials filtration back toward baseline.

Step 4: Sodium concentration, circulating volume, and secretion of solutes are not the direct targets of this loop; they merely shift as filtration changes. Hence the answer is GFR.

Quick Tip: Think of the macula densa and juxtaglomerular apparatus and the one renal variable they keep constant.

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23. Calcitonin levels are increased in medullary thyroid carcinoma. This tumour is most commonly associated with which one of the following?

- (A) Hyperthyroidism
- (B) Hyperparathyroidism
- (C) Hypoparathyroidism
- (D) Cushing Syndrome

Correct Answer: (B) Hyperparathyroidism

SOLUTION:

Step 1: A rising calcitonin points to medullary thyroid carcinoma, a tumour of the calcitonin-producing C cells, and rising levels after surgery signal relapse or spread.

Step 2: This cancer travels in families as part of MEN 2 syndromes, which bundle MTC with adrenal and parathyroid lesions.

Step 3: Among these, the parathyroid component shows up as hyperparathyroidism in about a fifth to a third of affected patients, so the strongest clinical association of MTC in this list is hyperparathyroidism.

Step 4: Thyroid hormone excess, low parathyroid activity, and cortisol excess do not fit the MEN 2 pattern that drives MTC, eliminating the other three.

Hyperparathyroidism

Quick Tip: Raised calcitonin signals medullary thyroid carcinoma - recall its MEN 2 parathyroid link.



24. When the values of $FEV1 = 1.3$ and $FVC = 3.9$, which of the following does this signify?

- (A) Normal lung function
- (B) Obstructive lung disease
- (C) Restrictive lung disease
- (D) Both

Correct Answer: (B) Obstructive lung disease

SOLUTION:

Step 1: The key spirometric number is $FEV1$ divided by FVC , which tells how fast air can be pushed out compared with the total volume exhaled.

Step 2: Plugging in the values gives $\frac{1.3}{3.9} = 0.33$, far under the healthy threshold of roughly 0.7.

Step 3: When this ratio drops, the airways are narrowed and emptying is slowed - the hallmark of obstruction such as COPD or asthma.

Step 4: In restriction the lungs are small but empty briskly, so the ratio is preserved or raised; a normal lung sits near 0.8. Neither fits a value of 0.33, leaving obstructive disease as the only match.

Obstructive lung disease

Quick Tip: Compute $FEV1/FVC$ and compare it with the normal 0.7-0.8 cut-off.



25. Antegrade peristalsis (descending relaxation ahead of the bolus) is due to which one of the following neurotransmitters?

- (A) Acetylcholine
- (B) Serotonin
- (C) Substance P
- (D) VIP

Correct Answer: (D) VIP

SOLUTION:

Step 1: Forward gut propulsion works as a two-part reflex: the muscle behind the food contracts while the muscle in front relaxes to make room.

Step 2: The contracting limb above the bolus is cholinergic and excitatory, using acetylcholine together with substance P and neurokinin A.

Step 3: The relaxing limb below the bolus is inhibitory and uses VIP along with nitric oxide and PACAP; this descending relaxation is what lets contents advance in the antegrade direction.

Step 4: Since the question asks for the transmitter responsible for the forward-enabling relaxation, serotonin (a trigger), acetylcholine and substance P (contraction) are excluded, leaving VIP

VIP

Quick Tip: Antegrade movement needs descending relaxation ahead of the bolus - recall its inhibitory transmitter.

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26. C-peptide is seen in which one of the following?

- (A) In Pre-proinsulin
- (B) In Proinsulin
- (C) As a combined entity with insulin after secretion
- (D) A gastrointestinal proactive molecule

Correct Answer: (B) In Proinsulin

SOLUTION:

Step 1: The beta cell builds insulin in stages, starting from pre-proinsulin and trimming it down step by step.

Step 2: Removing the signal peptide yields proinsulin, the immediate precursor of insulin.

Step 3: In proinsulin the future A and B chains are linked by the connecting (C) peptide, so the C-peptide is an integral part of this prohormone.

Step 4: At secretion the connecting peptide is snipped out, and equal amounts of insulin and free C-peptide leave the cell. Thus C-peptide is located within proinsulin, ruling out pre-proinsulin, a post-secretion insulin complex, or any gut molecule.

In Proinsulin

Quick Tip: The connecting peptide joins the A and B chains in which insulin precursor?

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27. In forceful expiration, which one of the following groups of neurons gets fired?

- (A) VRG (Ventral respiratory group)
- (B) DRG (Dorsal respiratory group)
- (C) Pneumotaxic centre
- (D) Chemoreceptors

Correct Answer: (A) VRG (Ventral respiratory group)

SOLUTION:

Step 1: Breathing is driven by neuron pools in the medulla, split into a dorsal group for inspiration and a ventral group for active breathing.

Step 2: During calm breathing the dorsal respiratory group runs the diaphragm and external intercostals, and expiration is passive.

Step 3: When expiration must be forced, the ventral respiratory group switches

on and recruits the abdominal and internal intercostal muscles to push air out actively.

Step 4: The pontine pneumotaxic centre only fine-tunes timing, and chemoreceptors merely report blood gas changes, so neither fires forced expiration. The active expiratory driver is the VRG.

VRG

Quick Tip: Quiet expiration is passive; the medullary group that powers active expiration is the answer.

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28. Slow conduction velocity is seen with which one of the following nerve fibers?

- (A) Preganglionic autonomic nerve fibers
- (B) Postganglionic autonomic nerve fibers
- (C) Motor nerves
- (D) Sympathetic nerve fibers

Correct Answer: (B) Postganglionic autonomic nerve fibers

SOLUTION:

Step 1: Conduction speed rises with fiber thickness and with myelin, so the slowest impulses travel along the thinnest unmyelinated fibers.

Step 2: Those thinnest fibers are the C fibers, measuring under one micrometre across and lacking myelin, with velocities as low as **0.2 to 2 m/s**.

Step 3: The autonomic fibers that belong to this slow C class are the postganglionic fibers, which is why they conduct most slowly of the options listed.

Step 4: Preganglionic autonomic fibers are myelinated type B and faster, somatic motor fibers are large fast A-alpha, and lumping all sympathetic fibers together still includes the quicker B fibers. The slowest, therefore, are postganglionic autonomic fibers.

Postganglionic autonomic nerve fibers

Quick Tip: Slowest = thin unmyelinated C fibers - which autonomic fibers fall in that class?

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29. Testosterone is secreted by which of the following cells?

- (A) Leydig's cells
- (B) Somatotrophic cells
- (C) Acidophilic cells
- (D) Gonadotropic cells

Correct Answer: (A) Leydig's cells

SOLUTION:

Step 1: Recall the site of androgen synthesis. Within the testis, the seminiferous tubules handle spermatogenesis, while the interstitial tissue between the tubules contains the steroid-producing cells.

Step 2: These interstitial cells are the Leydig cells, and they are the direct source of testosterone in the male.

Step 3: Pituitary LH binds Leydig cell receptors and drives cholesterol toward testosterone synthesis. The distractors (somatotrophic, acidophilic, gonadotropic cells) are all anterior pituitary cell types and do not make testosterone.

Step 4: Therefore the testosterone-secreting cells are the Leydig cells.

Leydig's cells

Quick Tip: Think of the interstitial cells of the testis driven by LH.

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30. Vasopressin acts through which channels in the collecting duct?

- (A) Aquaporin 1
- (B) Aquaporin 2
- (C) GLUT-1
- (D) GLUT-4

Correct Answer: (B) Aquaporin 2

SOLUTION:

Step 1: The question asks which membrane channel ADH inserts to make the collecting duct water-permeable.

Step 2: ADH binds V2 receptors on principal cells, raising cyclic AMP, which triggers trafficking of stored water-channel vesicles to the apical surface.

Step 3: The specific channel shuttled into the apical membrane is aquaporin-2 (AQP2). Water then exits the cell basolaterally through aquaporins 3 and 4.

Step 4: Aquaporin 1 sits in the proximal nephron and is constitutive, while the GLUT family carries glucose, so none of these fit the ADH response.

Aquaporin 2

Quick Tip: ADH inserts a specific aquaporin into the apical membrane of principal cells.

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31. Which of the following is true about decorticate rigidity?

- (A) Removal of cerebral cortex and basal ganglia
- (B) Flexion of lower limbs and extension of upper limbs
- (C) Rigidity is less pronounced than decerebrate rigidity
- (D) None of the above

Correct Answer: (C) Rigidity is less pronounced than decerebrate rigidity

SOLUTION:

Step 1: Compare the two classic rigidity states. Decerebrate rigidity follows a brainstem (midcollicular) section and shows extension of all four limbs with severe hypertonia.

Step 2: Decorticate rigidity follows loss of the cerebral cortex while the basal ganglia and rubrospinal tract stay functional. The upper limbs flex (elbows bent) and the lower limbs extend.

Step 3: Because the rubrospinal pathway is preserved and the basal ganglia remain, the overall tone increase is milder than in the decerebrate state.

Step 4: Screening the options, (a) wrongly removes basal ganglia and (b) wrongly flexes the legs, leaving only the statement that decorticate rigidity is less pronounced than decerebrate rigidity.

Rigidity is less pronounced than decerebrate rigidity

Quick Tip: Intact basal ganglia mean milder tone than in the decerebrate state.

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32. Zellweger syndrome is due to the absence of which organelle?

- (A) Lysosome
- (B) Mitochondria
- (C) Peroxisome
- (D) Nucleus

Correct Answer: (C) Peroxisome

SOLUTION:

Step 1: Zellweger syndrome belongs to the peroxisome biogenesis disorders, caused by mutations in PEX genes needed to assemble the organelle.

Step 2: The result is a failure to form functional peroxisomes, so the defining feature is reduction or absence of peroxisomes.

Step 3: Without peroxisomal beta-oxidation and plasmalogen production, very long chain fatty acids accumulate and myelin formation suffers, giving the

hepatic, renal, and severe neurological features.

Step 4: The other organelles do not fit: lysosomal disease gives storage disorders, mitochondrial disease gives energy-failure syndromes, and a nucleus-less cell cannot survive.

Peroxisome

Quick Tip: A peroxisome biogenesis disorder with very long chain fatty acid build-up.

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33. Urea, creatinine, and nitric oxide are formed from which amino acid?

- (A) Histidine
- (B) Glycine
- (C) Cysteine
- (D) Arginine

Correct Answer: (D) Arginine

SOLUTION:

Step 1: Identify a single amino acid that is the common precursor of urea, nitric oxide, and creatine/creatinine.

Step 2: In the urea cycle, arginine is split by arginase into urea and ornithine, directly generating urea.

Step 3: Nitric oxide synthase converts arginine to citrulline and nitric oxide, and the guanidino group of arginine is transferred onto glycine to begin creatine synthesis (creatinine being its end product).

Step 4: Only arginine feeds all three pathways, so the other choices are excluded.

Arginine

Quick Tip: A urea-cycle amino acid that also donates the guanidino group for creatine.

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34. Which of the following is NOT a source of cytosolic NADPH?

- (A) Isocitrate dehydrogenase
- (B) ATP citrate lyase
- (C) Malic enzyme
- (D) G6PD (glucose-6-phosphate dehydrogenase)

Correct Answer: (B) ATP citrate lyase

SOLUTION:

Step 1: List the cytosolic reactions that yield NADPH and find the odd one out.

Step 2: The pentose phosphate pathway via G6PD is the dominant supplier, and cytosolic NADP-dependent isocitrate dehydrogenase plus malic enzyme add more NADPH.

Step 3: ATP citrate lyase has a different job: it uses ATP to split citrate exported from mitochondria into acetyl-CoA (the building block for lipid synthesis) and oxaloacetate.

Step 4: Because ATP citrate lyase produces acetyl-CoA rather than NADPH, it is the enzyme that is not a NADPH source.

ATP citrate lyase

Quick Tip: One listed enzyme makes acetyl-CoA for lipogenesis, not NADPH.

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35. All of the following are true regarding mitochondrial DNA, EXCEPT?

- (A) Double stranded
- (B) Inherited from mother
- (C) High mutation rate
- (D) All respiratory proteins are synthesized within the mitochondria itself

Correct Answer: (D) All respiratory proteins are synthesized within the mitochondria itself

SOLUTION:

Step 1: Check each statement against known mtDNA biology to spot the false one.

Step 2: The molecule is a small circular double-stranded genome, it is maternally inherited, and its mutation rate is high - all of these are correct.

Step 3: The mitochondrial genome codes for only 13 polypeptides plus its own rRNAs and tRNAs. The vast majority of respiratory chain subunits and other mitochondrial proteins are encoded by nuclear genes.

Step 4: Those nuclear-encoded proteins are translated on cytosolic ribosomes and imported, so the claim that all respiratory proteins are made inside the mitochondria is the exception.

All respiratory proteins are synthesized within mitochondria itself

Quick Tip: Most mitochondrial proteins are nuclear-encoded and imported from the cytosol.

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36. Which apolipoprotein is responsible for Alzheimer's disease?

- (A) APOE4
- (B) APOE3
- (C) APOE2
- (D) APOE1

Correct Answer: (A) APOE4

SOLUTION:

Step 1: Apolipoprotein E is coded by a gene that exists in different isoform-producing variants. Among these, the form written as APOE4 carries the strongest

disease link.

Step 2: APOE4 carriers handle brain amyloid-beta poorly. Impaired clearance and enhanced deposition of $A\beta$ plaques accelerate neurodegeneration, which is why this allele dominates the genetic risk profile for Alzheimer's.

Step 3: The other variants behave very differently. APOE2 lowers risk, APOE3 is risk-neutral, and an APOE1 form is not the recognised major contributor. Hence the apolipoprotein responsible is APOE4.

APOE4

Quick Tip: Think of the e4 allele - the strongest genetic risk factor for late-onset Alzheimer's.

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37. Hyperammonaemia inhibits the TCA cycle by depleting which intermediate?

- (A) Succinate
- (B) Alpha ketoglutarate
- (C) Malate
- (D) Fumarate

Correct Answer: (B) Alpha ketoglutarate

SOLUTION:

Step 1: Excess ammonia is toxic, so the cell converts it into the harmless carrier glutamine. The first trap for ammonia is the formation of glutamate.

Step 2: Glutamate is built by adding ammonia onto a TCA-cycle carbon skeleton, namely α -ketoglutarate. The sequence runs α -ketoglutarate + $NH_4^+ \rightarrow$ glutamate $\rightarrow$ glutamine.

Step 3: Because α -ketoglutarate is being siphoned off for ammonia disposal, less of it remains to keep the citric acid cycle turning. The cycle is therefore throttled by loss of this single intermediate, not by succinate, malate, or fumarate.

Alpha ketoglutarate

Quick Tip: Ammonia is mopped up as glutamate, drawing this TCA intermediate away.

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38. Which amino acid is used to synthesise nitric oxide?

- (A) Glycine
- (B) Arginine
- (C) Tyrosine
- (D) Threonine

Correct Answer: (B) Arginine

SOLUTION:

Step 1: Vasodilatory nitric oxide does not appear on its own - it is enzymatically produced by nitric oxide synthases present in neurons, endothelium, and immune cells.

Step 2: The substrate these enzymes act on is the basic amino acid arginine. The reaction strips a nitrogen to yield NO while leaving behind citrulline, and it depends on O_2 and *NADPH* as helpers.

Step 3: Whether it is the nNOS, iNOS, or eNOS isoform, the starting amino acid is always arginine. The remaining options - glycine, tyrosine, threonine - have no role as the NO source.

Arginine

Quick Tip: NOS converts this basic amino acid into citrulline plus NO.

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39. Menkes disease is associated with deficiency of which enzyme?

- (A) Lysyl oxidase
- (B) Methionine synthase
- (C) Glutamyl aminopeptidase
- (D) Lysyl hydroxylase

Correct Answer: (A) Lysyl oxidase

SOLUTION:

Step 1: The core defect in Menkes disease is faulty copper transport. A mutated ATP7A pump traps copper and starves tissues of this trace metal.

Step 2: Copper-requiring enzymes lose function as a result. The connective-tissue enzyme that cross-links collagen and elastin - lysyl oxidase - is copper dependent, so its activity collapses.

Step 3: Weak cross-linking explains the brittle bones, fragile vessels, and characteristic kinky hair. Methionine synthase (B12-dependent), glutamyl aminopeptidase, and lysyl hydroxylase (vitamin C dependent) are not the copper-linked target. The answer is lysyl oxidase.

Lysyl oxidase

Quick Tip: Copper deficiency knocks out the collagen cross-linking enzyme.

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40. LCAT deficiency increases which of the following?

- (A) HDL
- (B) LDL
- (C) VLDL
- (D) Chylomicron

Correct Answer: (A) HDL

SOLUTION:

Step 1: The enzyme LCAT works specifically on the surface of HDL particles. It takes free cholesterol and adds a fatty acid to lock it into the particle core as cholesterol ester.

Step 2: Losing LCAT means free cholesterol cannot be esterified, so HDL stays in its flat, immature nascent shape and fails to fill out into mature spherical HDL.

Step 3: Because the disorder is defined by abnormal, unmatured HDL carrying excess free cholesterol, HDL is the lipoprotein flagged in this question. The other lipoproteins - LDL, VLDL, chylomicron - are not the primary LCAT substrate.

HDL

Quick Tip: LCAT matures this lipoprotein by esterifying its free cholesterol.

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41. A 25 year old alcoholic presented with edema, hypertension, ocular disturbance, and changes in mental state. A diagnosis of high output cardiac failure with Wet Beri Beri was made. This is due to deficiency of which vitamin?

- (A) Vitamin B3
- (B) Vitamin B6
- (C) Vitamin B9
- (D) Vitamin B1

Correct Answer: (D) Vitamin B1

SOLUTION:

Step 1: A chronic drinker with heart failure plus neurological and ocular signs points strongly to thiamine deficiency, the vitamin most easily lost in alcoholism.

Step 2: Thiamine lack produces wet beriberi, where blood vessels dilate widely. The heart compensates with a high-output state, and fluid is retained via aldosterone, giving the edema and raised pressure described.

Step 3: The most severe variant, Shoshin beriberi, adds cyanosis, tachycardia,

and engorged neck veins. All of this traces back to one missing vitamin - B_1 (thiamine). B3, B6, and B9 deficiencies cause different syndromes.

Vitamin B1

Quick Tip: Wet beriberi in an alcoholic - think thiamine.

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42. Glutamine is increased in CSF, blood, and urine. This is due to deficiency of which enzyme?

- (A) CPS-I
- (B) Arginase
- (C) OTC
- (D) Argininosuccinate synthetase

Correct Answer: (A) CPS-I

SOLUTION:

Step 1: Rising glutamine across CSF, blood, and urine is the body's way of trapping excess ammonia, signalling a block at the very start of the urea cycle.

Step 2: The first committed, rate-limiting step is run by carbamoyl phosphate synthetase I, which fuses ammonia, ATP , and HCO_3^- into carbamoyl phosphate and needs N-acetylglutamate as an allosteric switch.

Step 3: If CPS-I fails, ammonia never gets incorporated and is shunted into glutamine instead, raising glutamine levels everywhere. This proximal defect fits better than the more distal enzymes OTC, argininosuccinate synthetase, or arginase.

CPS-I

Quick Tip: A proximal urea cycle block raises glutamine - look at the rate-limiting

enzyme.

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43. Which of the following is true about type 1 diabetes mellitus?

- (A) Decreased protein catabolism
- (B) Decreased hepatic glucose output
- (C) Increased lipolysis
- (D) Increased glucose uptake

Correct Answer: (C) Increased lipolysis

SOLUTION:

Step 1: In type 1 diabetes the pancreatic beta cells fail and circulating insulin is essentially absent, so insulin-dependent metabolic controls are switched off.

Step 2: Without insulin, hormone-sensitive lipase in adipose tissue stays active. This means triglyceride stores are continuously hydrolysed, a process called lipolysis, releasing free fatty acids into the blood.

Step 3: These fatty acids flood the liver and undergo heavy beta-oxidation. Acetyl-CoA produced beyond the capacity of the TCA cycle is diverted to ketone body synthesis, explaining the ketosis seen in uncontrolled disease.

Step 4: Reviewing the distractors: tissue glucose uptake falls because GLUT4 needs insulin, hepatic glucose release rises from unchecked gluconeogenesis and glycogenolysis, and muscle protein catabolism increases to supply gluconeogenic substrates. The only correct statement is the rise in lipolysis.

Increased lipolysis

Quick Tip: No insulin means nothing stops fat stores from being broken down.

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44. Which protein is NOT synthesised in the liver?

- (A) Phase protein
- (B) Immunoglobulins
- (C) Albumin
- (D) Plasma hormone

Correct Answer: (B) Immunoglobulins

SOLUTION:

Step 1: Think about what the liver manufactures: it pours out albumin (the main oncotic plasma protein), the bulk of the coagulation and fibrinolytic factors, and acute phase reactants released during inflammation.

Step 2: Antibodies, however, belong to the humoral immune response. Their production line is the plasma cell, an end-stage B-lymphocyte residing in lymphoid tissue and bone marrow, not the hepatocyte.

Step 3: Scanning the choices, phase proteins and albumin are textbook hepatic products, and plasma hormone-carrier proteins are largely hepatic too, so they cannot be the answer.

Step 4: The one item the liver does not build is the immunoglobulin fraction of the globulins.

Immunoglobulins

Quick Tip: Antibodies come from plasma cells, not hepatocytes.

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45. Which type of cholesterol is present in gallstones?

- (A) Amorphous cholesterol monohydrate
- (B) Amorphous cholesterol dihydrate
- (C) Crystalline cholesterol dihydrate
- (D) Crystalline cholesterol monohydrate

Correct Answer: (D) Crystalline cholesterol monohydrate

SOLUTION:

Step 1: Gallstone formation begins with bile that holds more cholesterol than it can keep dissolved, a state called supersaturation.

Step 2: As the gallbladder concentrates this bile, cholesterol drops out as microscopic solid particles. Because these particles have a regular repeating lattice they are described as crystalline rather than amorphous.

Step 3: Chemically, each cholesterol molecule in the stone is associated with one water molecule, giving the monohydrate form. So the building block of a cholesterol stone is the cholesterol monohydrate crystal.

Step 4: Eliminating dihydrate and amorphous descriptions leaves only one valid choice.

Crystalline cholesterol monohydrate

Quick Tip: Cholesterol gallstones are made of ordered monohydrate crystals.

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46. Which type of collagen is present in skin?

- (A) Type II
- (B) Type I
- (C) Type III
- (D) Type IV

Correct Answer: (B) Type I

SOLUTION:

Step 1: Collagen exists in at least 28 forms, but for exams the tissue location of the first few types is what matters.

Step 2: A simple memory anchor: Type I is the bone, skin, and tendon collagen, making it the most widespread structural collagen in the body.

Step 3: By contrast, cartilage relies on Type II, reticular networks use Type III, and the basement membrane sheet is Type IV. None of these is the principal skin

collagen.

Step 4: Therefore the collagen of skin is Type I.

Type I

Quick Tip: Skin, bone, and tendon share the most abundant collagen type.

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47. Which of the following is NOT a ribozyme?

- (A) Poly A polymerase
- (B) Ribonuclease
- (C) Transpeptidase
- (D) Peptidyl transferase

Correct Answer: (A) Poly A polymerase

SOLUTION:

Step 1: Ribozymes are defined by being RNA, not protein, yet still catalysing a reaction. The famous example is the ribosome itself forming peptide bonds.

Step 2: Polyadenylation tags the 3' end of an mRNA with many adenine bases. The machine that performs this, poly A polymerase, is a polypeptide enzyme, placing it firmly in the protein-enzyme camp.

Step 3: The remaining options reflect RNA-mediated catalysis: peptidyl transferase activity resides in ribosomal RNA, and RNase P uses an RNA component for cleavage.

Step 4: The odd one out, being a protein enzyme rather than catalytic RNA, is poly A polymerase.

Poly A polymerase

Quick Tip: The poly(A) tail adder is a protein, not catalytic RNA.



48. Type I hyperlipoproteinemia is characterized by which of the following?

- (A) Elevated LDL
- (B) Elevated HDL
- (C) Elevated chylomicrons
- (D) Elevated lipoprotein lipase

Correct Answer: (C) Elevated chylomicrons

SOLUTION:

Step 1: Start from the enzyme that handles dietary fat in the bloodstream: lipoprotein lipase digests the triglyceride core of chylomicrons and VLDL.

Step 2: In Type I (familial chylomicronemia), this lipase is genetically defective, so the chylomicrons delivered from the gut are never cleared and pile up in plasma.

Step 3: The laboratory picture is dominated by sky-high triglycerides carried in these retained chylomicrons. The lipase is reduced, not raised, ruling out option d, while LDL and HDL changes are not characteristic.

Step 4: Hence the defining abnormality is an excess of circulating chylomicrons.

Elevated chylomicrons

Quick Tip: Lipoprotein lipase deficiency leaves chylomicrons uncleared.



49. In the Krebs cycle and the urea cycle, the linking amino acid is which of the following?

- (A) Fumarate
- (B) Alanine
- (C) Arginine
- (D) Aspartate

Correct Answer: (D) Aspartate

SOLUTION:

Step 1: Look for a molecule that has a foot in both the urea cycle and the citric acid cycle. Aspartate fits because of its transamination partner oxaloacetate.

Step 2: On the urea side, aspartate donates its nitrogen by joining citrulline to make argininosuccinate, the step that introduces the second nitrogen of urea.

Step 3: On the Krebs side, removing the amino group from aspartate gives oxaloacetate, a hub intermediate of the TCA cycle, so aspartate is effectively oxaloacetate carrying an amino group.

Step 4: This dual membership, urea cycle directly and Krebs cycle via oxaloacetate, makes aspartate the bridging amino acid.

Aspartate

Quick Tip: Its keto acid partner is oxaloacetate, a TCA intermediate.

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50. Vitamin A is stored in which of the following cells?

- (A) Cells of Ito
- (B) Hepatocyte
- (C) Endothelial cell
- (D) Kupffer cell

Correct Answer: (A) Cells of Ito

SOLUTION:

Step 1: Vitamin A is a fat-soluble vitamin, so its store must sit in a lipid-rich cell. We look inside the liver lobule for that cell.

Step 2: The space of Disse houses the hepatic stellate cell (Ito cell). It is loaded with fat droplets holding retinyl esters such as retinyl palmitate.

Step 3: Roughly 50 – 80% of whole-body vitamin A sits in these droplets, which is

why Ito cells are nicknamed vitamin A-storing or fat-storing cells.

Step 4: By elimination, hepatocytes (metabolic workhorses), Kupffer cells (phagocytes) and sinusoidal endothelial cells (lining) do not serve as the depot. The depot is the Ito cell.

Cells of Ito

Quick Tip: Think of the fat-storing cell sitting in the space of Disse.

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51. Glanzmann thrombasthenia is due to which of the following?

- (A) Decreased GpIb
- (B) Decreased GpIIb/IIIa
- (C) Anti-GpIIb/IIIa antibodies
- (D) Inhibition or deficiency of ADAMTS 13

Correct Answer: (B) Decreased GpIIb/IIIa

SOLUTION:

Step 1: Frame the disease by its key step in haemostasis. Glanzmann thrombasthenia breaks the aggregation phase of platelets, not adhesion.

Step 2: Aggregation needs fibrinogen bridges anchored to the **GpIIb/IIIa** integrin. In this autosomal recessive disorder that integrin is deficient or non-functional.

Step 3: So platelets cannot clump even when stimulated by ADP or collagen, and the bleeding time is long while the count stays normal.

Step 4: Contrast: **GpIb** loss is Bernard-Soulier (adhesion defect), ADAMTS-13 loss is TTP, and acquired antibodies drive ITP. Only decreased **GpIIb/IIIa** fits.

Decreased GpIIb/IIIa

Quick Tip: Defective fibrinogen receptor blocks platelet aggregation.

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52. Which of the following is an apoptotic gene?

- (A) Bax
- (B) Bcl2
- (C) Bclx
- (D) Mcl

Correct Answer: (B) Bcl2

SOLUTION:

Step 1: Recall that the master switch family for programmed cell death is named after one gene. That gene gives the family its label.

Step 2: The family is the *Bcl* – 2 family, sitting on chromosome 18, and Bcl-2 itself is the index member.

Step 3: A handy mnemonic: members ending in *S* (Bcl-xs) Stimulate death, members ending in *L* (Bcl-xl) Lower death; Bax and Bak push apoptosis while Bcl-2 and Mcl-1 oppose it.

Step 4: Among the options, the gene that the family is named for and the expected key is Bcl-2.

Bcl2

Quick Tip: The gene family that governs apoptosis takes its name from this member.

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53. Alpha-1 antitrypsin works by which of the following mechanisms?

- (A) Inhibition of trypsin
- (B) Inhibition of trypsinogen
- (C) Inhibition of elastase
- (D) Inhibition of chymotrypsin

Correct Answer: (C) Inhibition of elastase

SOLUTION:

Step 1: Approach by clinical consequence: A1AT deficiency causes emphysema, so the enzyme it normally curbs must damage lung tissue.

Step 2: That lung-damaging enzyme is neutrophil elastase, which chews up elastin in alveolar walls.

Step 3: A1AT, a liver-made serpin, binds and neutralises elastase, keeping the protease-antiprotease balance in favour of intact connective tissue.

Step 4: When A1AT is low, elastase runs free and panacinar emphysema follows. The mechanism asked is inhibition of elastase, not trypsin, trypsinogen or chymotrypsin.

Inhibition of elastase

Quick Tip: Its deficiency causes emphysema because this lung protease runs unchecked.

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54. Which one of the following is an autosomal recessive disorder?

- (A) Albinism
- (B) Huntington's syndrome
- (C) Marfan's syndrome
- (D) Neurofibromatosis-1

Correct Answer: (A) Albinism

SOLUTION:

Step 1: Sort each option by its inheritance pattern, then keep the recessive one.

Step 2: Huntington's disease, Marfan syndrome and NF-1 are well-known autosomal dominant conditions, each needing only one mutant allele.

Step 3: Albinism, by contrast, needs two defective alleles in a pigment-pathway gene such as tyrosinase, the hallmark of autosomal recessive transmission.

Step 4: So three options are dominant and only albinism is recessive.

Albinism

Quick Tip: Three options are dominant; the pigment disorder is the recessive one.

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55. Fish-mouth appearance of the valve in rheumatic heart disease is due to which of the following?

- (A) Rupture of valve
- (B) Calcification and fibrosis
- (C) Hypertrophy of ventricular wall
- (D) None of the above

Correct Answer: (B) Calcification and fibrosis

SOLUTION:

Step 1: Trace what chronic rheumatic injury does to the mitral valve over years of recurrent inflammation.

Step 2: Healing by scar lays down dense fibrous tissue, the leaflets thicken, the commissures fuse, and calcium deposits accumulate.

Step 3: This fibrosis plus calcification stiffens and narrows the orifice into a slit, the so-called fish-mouth or buttonhole valve seen in mitral stenosis.

Step 4: Neither a torn valve nor a thick ventricular wall creates that orifice shape, so the answer is calcification and fibrosis.

Calcification and fibrosis

Quick Tip: Chronic scarring and calcium deposits narrow the mitral orifice.

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56. Follicular lymphoma shows positivity for which of the following?

- (A) Bcl-1
- (B) Bcl-6
- (C) Bcl-2
- (D) None of the above

Correct Answer: (C) Bcl-2

SOLUTION:

Step 1: Identify follicular lymphoma by its signature genetic lesion and the protein it overexpresses.

Step 2: The hallmark is $t(14;18)$, which juxtaposes the chromosome 18 *BCL-2* gene with the immunoglobulin heavy chain enhancer on chromosome 14.

Step 3: This drives constant BCL-2 production. Since BCL-2 prevents apoptosis, the follicle-centre B cells become effectively immortal and pile up, and immunostaining is BCL-2 positive (unlike reactive germinal centres which are BCL-2 negative).

Step 4: Bcl-1 points to mantle cell and Bcl-6 to germinal-centre/DLBCL, so the expected positivity for follicular lymphoma is Bcl-2.

Bcl-2

Quick Tip: The $t(14;18)$ translocation overexpresses this anti-apoptotic protein.

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57. What is the histological difference between Ulcerative colitis and Crohn's disease?

- (A) Diffuse distribution of pseudopolyps
- (B) Mucosal edema
- (C) Crypt abscess
- (D) Lymphoid aggregates in the mucosa

Correct Answer: (C) Crypt abscess

SOLUTION:

Step 1: Approach this by recalling the depth and pattern of inflammation in each disease. UC is a mucosal disease that begins in the rectum and spreads proximally, while Crohn's disease is patchy and transmural. **Step 2:** On microscopy, UC shows neutrophils packed inside the intestinal crypts, forming crypt abscesses, together with crypt architectural distortion. **Step 3:** Crohn's disease is identified instead by non-caseating granulomas and full-thickness wall involvement, which are absent here as answer choices. **Step 4:** Matching the listed options, only the crypt abscess is a defining histological feature that points to UC over Crohn's disease, making option c correct.

Crypt abscess

Quick Tip: Think of neutrophil collections inside the crypts that typify ulcerative colitis.

...

58. What is the cause of intracorpuscular defects in hemolysis?

- (A) Uremic syndrome
- (B) PCH
- (C) PNH
- (D) Portal hypertension

Correct Answer: (C) PNH

SOLUTION:

Step 1: Decide whether each option places the defect inside the red blood cell or outside it. An intracorporeal cause means the membrane, enzymes, or hemoglobin of the cell are themselves faulty. **Step 2:** PNH arises from a somatic mutation in the PIGA gene of a hematopoietic stem cell, so the resulting red cells lack the GPI anchor for CD55 and CD59 and cannot block complement, which is a defect intrinsic to the cell. **Step 3:** By contrast, uremia, portal hypertension, and cold antibodies in PCH all damage structurally normal red cells from the outside, so they are extracorporeal. **Step 4:** The only intracorporeal option provided is PNH.

PNH

Quick Tip: Look for the acquired membrane defect that strips CD55 and CD59 off red cells.

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59. Type of necrosis seen in blood vessels due to immune reactions-

- (A) Coagulation
- (B) Liquefaction
- (C) Fibrinoid
- (D) None

Correct Answer: (C) Fibrinoid

SOLUTION:

Step 1: Link each necrosis pattern to its usual setting. Coagulative goes with ischemia in heart, kidney, and spleen; liquefactive goes with brain infarcts and pus; fibrinoid goes with antigen-antibody complex damage to vessels. **Step 2:** In immune vasculitis, complexes plus fibrin accumulate within the arterial or arteriolar wall, giving a glassy eosinophilic deposit termed fibrinoid necrosis. **Step 3:** This same change marks the vessels in malignant hypertension, reinforcing the

vascular and immune association. **Step 4:** Because the stem specifies blood vessels and immune reactions, fibrinoid necrosis is the only fitting choice.

Fibrinoid

Quick Tip: Immune complexes plus fibrin deposited in a vessel wall give this glassy pink necrosis.

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60. In a patient with lipoprotein lipase deficiency, which of the following is increased following a fatty meal?

- (A) Chylomicron
- (B) LDL
- (C) HDL
- (D) Apo-A

Correct Answer: (A) Chylomicron

SOLUTION:

Step 1: Trace the fate of fat from a meal. Dietary triglycerides are packaged into chylomicrons in the gut, and LPL on the capillary endothelium normally breaks them down. **Step 2:** When LPL is deficient, this breakdown stalls, so the triglyceride-laden chylomicrons pile up in plasma, especially right after a fatty meal, giving a creamy supernatant and very high triglycerides. **Step 3:** Since chylomicrons and VLDL are not processed, the particles derived from them, namely LDL and HDL (with its Apo-A), remain low rather than elevated. **Step 4:** Among the options, only chylomicron rises after the fatty meal.

Chylomicron

Quick Tip: Without LPL, the triglyceride-rich particle straight from the gut cannot be cleared.



61. In Wilson's disease, there is less urinary excretion of-

- (A) Phosphorus
- (B) Methyl-Histidine
- (C) Phosphotyrosine
- (D) Serine

Correct Answer: (B) Methyl-Histidine

SOLUTION:

Step 1: Frame Wilson's disease as a copper-overload illness from defective ATP7B, with the classic triad of hepatic injury, basal-ganglia neurologic signs, and Kayser-Fleischer rings, plus a low ceruloplasmin. **Step 2:** The item tests a recalled association in which urinary excretion of methyl-histidine, a product of muscle protein turnover, is decreased. **Step 3:** The remaining choices, phosphorus, phosphotyrosine, and serine, are not linked to this recalled finding. **Step 4:** Following the printed key, methyl-histidine is the correct option.

Methyl-Histidine

Quick Tip: The printed key points to the muscle-turnover marker among these urinary substances.



62. What is the function of IL-1?

- (A) Enhances hematopoiesis
- (B) Stimulates mast cells
- (C) Has antiviral properties
- (D) Endogenous pyrogen

Correct Answer: (D) Endogenous pyrogen

SOLUTION:

Step 1: Recall that cytokines have signature roles, and IL-1 is one of the three classic endogenous pyrogens along with IL-6 and TNF-alpha. **Step 2:** IL-1, a heat- and pH-stable peptide existing as IL-1 alpha and IL-1 beta, raises the hypothalamic set point to cause fever and drives the acute-phase response. **Step 3:** Antiviral defense belongs to interferons, while IL-1 does not primarily act as a mast-cell stimulant or a hematopoietic enhancer in the way the distractors imply. **Step 4:** The defining function listed is endogenous pyrogen activity.

Endogenous pyrogen

Quick Tip: This macrophage cytokine resets the hypothalamic thermostat to cause fever.

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63. CEAP score indicates-

- (A) Atrial disorders
- (B) Venous disorder
- (C) Neurological disorder
- (D) Trauma disorder

Correct Answer: (B) Venous disorder

SOLUTION:

Step 1: Break down the acronym CEAP into Clinical, Etiologic, Anatomic, and Pathophysiologic categories, which together describe a disease of the venous system. **Step 2:** The clinical axis runs from C0 through C6 and labels signs of chronic venous insufficiency such as edema, skin pigmentation, lipodermatosclerosis, and healed or active ulcers. **Step 3:** None of these descriptors map to atrial, neurological, or traumatic conditions, ruling out those options. **Step 4:** The CEAP classification is therefore an indicator of a venous disorder.

Venous disorder

Quick Tip: This Clinical-Etiologic-Anatomic-Pathophysiologic system stages chronic limb vein disease.

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64. IL-1 is activated by which of the following?

- (A) Caspase 1
- (B) Caspase 3
- (C) Caspase 8
- (D) Caspase 5

Correct Answer: (A) Caspase 1

SOLUTION:

Step 1: Caspases are a family of cysteine proteases. They split broadly into apoptotic caspases and inflammatory caspases. **Step 2:** The inflammatory caspase that matters for interleukin processing is Caspase-1, historically named ICE (IL-1 converting enzyme). It assembles inside the inflammasome along with sensor proteins such as NLRP3. **Step 3:** Active Caspase-1 trims the immature precursors pro-IL-1 beta and pro-IL-18, converting them into the secreted active cytokines that amplify inflammation. **Step 4:** The distractors Caspase 3 and Caspase 8 sit on the apoptosis pathway and have no role in maturing IL-1, so they are excluded.

Caspase 1

Quick Tip: Think inflammasome and the enzyme once called ICE.

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65. A parotid mass with mixed consistency is most likely which of the following?

- (A) Pleomorphic adenoma
- (B) Sebaceous cyst
- (C) Dermoid cyst
- (D) All

Correct Answer: (A) Pleomorphic adenoma

SOLUTION:

Step 1: When a lump arises within the parotid and feels firm yet partly soft, the examiner is pointing toward a tumour with heterogeneous tissue architecture.

Step 2: Pleomorphic adenoma fits perfectly. The word pleomorphic describes the mixture of epithelial sheets, myoepithelial cells and a mucoid or cartilage like matrix, not just varied appearance. This mix is what produces the uneven feel.

Step 3: It is the single most common salivary gland neoplasm and overwhelmingly favours the parotid, presenting as a painless lobulated mass.

Step 4: Sebaceous cyst and dermoid cyst are dermal cystic lesions; neither is a genuine parotid parenchymal tumour, so the combined option is also wrong.

Pleomorphic adenoma

Quick Tip: The classic mixed tumour of the salivary gland.

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66. Krabbe's disease is caused by which enzyme deficiency?

- (A) Deficiency of beta-galactosylceramidase
- (B) Deficiency of aryl sulphatase
- (C) Alpha galactosidase
- (D) Acid lipase

Correct Answer: (A) Deficiency of beta-galactosylceramidase

SOLUTION:

Step 1: The question maps a leukodystrophy to its missing enzyme. Krabbe disease is the globoid cell leukodystrophy and is inherited in an autosomal recessive pattern. **Step 2:** The defective gene is GALC at locus 14q31, and the protein it encodes is galactosylceramidase, also written as beta-galactocerebrosidase. Without it, galactocerebroside processing fails. **Step 3:** The toxic metabolite psychosine builds up, destroys myelin forming cells, and recruits the multinucleated globoid macrophages that name the disease. **Step 4:** Each distractor belongs to a different storage disease: aryl sulphatase A to metachromatic leukodystrophy, alpha galactosidase to Fabry, acid lipase to Wolman. So only beta-galactosylceramidase fits Krabbe.

Deficiency of beta-galactosylceramidase

Quick Tip: Globoid cell leukodystrophy and the GALC gene.

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67. What is the choice of treatment for idiopathic thrombocytopenic purpura (ITP)?

- (A) Blood transfusion
- (B) Spontaneous recovery
- (C) IV infusion
- (D) Splenectomy

Correct Answer: (D) Splenectomy

SOLUTION:

Step 1: ITP is an antibody mediated platelet destruction disorder, and the spleen plays a double role: it clears the antibody tagged platelets and it manufactures much of the offending autoantibody. **Step 2:** Acute management leans on steroids and intravenous immunoglobulin, yet these do not cure the chronic disease. **Step 3:** When the disease is chronic or fails medical therapy, the operation that addresses both pathogenic roles at once is splenectomy, producing durable remission in the majority. **Step 4:** Transfusing platelets is futile because they are

quickly destroyed, spontaneous recovery is unreliable in chronic disease, and a vague IV infusion is not a defined cure. So the chosen treatment is removal of the spleen.

Splenectomy

Quick Tip: The organ that both destroys platelets and makes the antibody.

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68. Which fluoroquinolone has the maximum oral bioavailability?

- (A) Moxifloxacin
- (B) Gatifloxacin
- (C) Levofloxacin
- (D) Ciprofloxacin

Correct Answer: (C) Levofloxacin

SOLUTION:

Step 1: The query is about which quinolone behaves almost the same whether given by mouth or by vein, which depends on oral bioavailability. **Step 2:** Norfloxacin is the poorly absorbed outlier of the group, used mainly for urinary and gut infections. Everything else absorbs well. **Step 3:** Levofloxacin stands out with roughly 100 percent oral bioavailability, allowing easy IV to oral switch. Ciprofloxacin lags at about 70 percent, and moxifloxacin and gatifloxacin, while high, are still beneath levofloxacin. **Step 4:** A practical caveat is that co-administered di- and trivalent cations bind these drugs and cut absorption, so dosing must be spaced. The answer therefore is levofloxacin.

Levofloxacin

Quick Tip: Which quinolone is nearly 100 percent orally bioavailable.

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69. What is the mechanism of action of buspirone?

- (A) 5-HT_{1A} partial agonism
- (B) 5-HT_{1B} antagonism
- (C) 5-HT_{1B} partial agonism
- (D) 5-HT_{2C} antagonism

Correct Answer: (A) 5-HT_{1A} partial agonism

SOLUTION:

Step 1: Buspirone belongs to the azapirone anxiolytics and is notable for lacking the sedation, muscle relaxation and dependence seen with benzodiazepines because it stays away from the GABA system. **Step 2:** Instead it targets serotonin, behaving as a partial agonist at the 5-HT_{1A} receptor subtype. This subtype acts as a presynaptic autoreceptor that governs how much serotonin is released. **Step 3:** Partial stimulation of these autoreceptors recalibrates serotonergic tone gradually, which is why the anti-anxiety benefit appears after a couple of weeks rather than immediately. **Step 4:** The 5-HT_{1B} and 5-HT_{2C} options do not match buspirone pharmacology; congeners such as isapirone and gepirone share the same 5-HT_{1A} partial agonist action.

5-HT_{1A} partial agonism

Quick Tip: Azapirone anxiolytic acting on a serotonin autoreceptor.

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70. Which statement best describes the mechanism of action of azole antifungals?

- (A) Inhibition of synthesis of ergosterol
- (B) Inhibition of thymidylate synthase
- (C) Targeting beta-1,3-glucan
- (D) Disruption of cell wall

Correct Answer: (A) Inhibition of synthesis of ergosterol

SOLUTION:

Step 1: Fungal membranes rely on ergosterol the way human membranes rely on cholesterol, so blocking its supply cripples the organism. **Step 2:** Azoles work upstream in that pathway by inhibiting the P450 enzyme 14-alpha-lanosterol demethylase, halting the conversion of lanosterol toward ergosterol. **Step 3:** The consequence is twofold: ergosterol falls and toxic methylated sterol intermediates pile up in the membrane, leaving it leaky and non-functional, which kills susceptible yeasts and moulds. **Step 4:** Each wrong option names a different antifungal strategy: flucytosine hits thymidylate synthase, echinocandins block beta-1,3-glucan synthesis, and only polyenes and certain agents disrupt the membrane directly. So the azole mechanism is inhibition of ergosterol synthesis.

Inhibition of synthesis of ergosterol

Quick Tip: They block 14-alpha-demethylase in the ergosterol pathway.

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71. Which of the following is an orally active direct factor Xa inhibitor?

- (A) Rivaroxaban
- (B) Argatroban
- (C) Dabigatran
- (D) Bivalirudin

Correct Answer: (A) Rivaroxaban

SOLUTION:

Step 1: Sort the four drugs by the clotting-factor target they hit. Direct oral anticoagulants split into two groups: those targeting thrombin (IIa) and those targeting Xa.

Step 2: The "-xaban" suffix flags the factor Xa inhibitors. Rivaroxaban fits this

pattern and is taken by mouth, satisfying both criteria in the stem.

Step 3: Dabigatran ends in "-gatran" and is the oral direct thrombin inhibitor, so it is excluded. Argatroban and bivalirudin are injectable thrombin inhibitors used during procedures such as in heparin-induced thrombocytopenia, so neither is oral nor a Xa blocker.

Step 4: Matching "oral" plus "direct Xa" leaves a single correct choice.

Rivaroxaban

Quick Tip: Look for the oral "-xaban" drug, not the "-gatran" thrombin blocker.

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72. Which among the following is the most probable reason for preference of cisatracurium over atracurium?

- (A) Decreased histamine release
- (B) Increased histamine release
- (C) Due to elimination by Hofmann elimination
- (D) Increased CNS toxicity

Correct Answer: (A) Decreased histamine release

SOLUTION:

Step 1: Frame the comparison as "what makes cisatracurium safer." Identify the trait that is uniquely better, not one shared by both agents.

Step 2: Hofmann elimination is common to the whole atracurium family, so option c is a shared property and cannot explain a preference.

Step 3: Atracurium liberates histamine, causing rash, hypotension and bronchoconstriction. Cisatracurium is essentially free of this effect, giving a calmer hemodynamic course with no change in heart rate or blood pressure.

Step 4: Cisatracurium also generates less laudanosine, so CNS excitation and seizure risk fall rather than rise, ruling out option d. The decisive edge is the absence of histamine release.

Decreased histamine release

Quick Tip: Both share Hofmann elimination; the real edge is no histamine release.

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73. Which of the following drugs is used in SIADH (syndrome of inappropriate ADH secretion)?

- (A) Tolvaptan
- (B) Desmopressin
- (C) von Willebrand factor
- (D) Terlipressin

Correct Answer: (A) Tolvaptan

SOLUTION:

Step 1: Reduce SIADH to one idea: too much ADH effect, so you need to block the V2 receptor and let water out.

Step 2: Tolvaptan is the non-peptide V2 antagonist taken once daily, metabolized by CYP3A4. By promoting an aquaresis (water loss without sodium loss) it raises serum sodium toward normal.

Step 3: Desmopressin and terlipressin push the receptor the other way as agonists, so they aggravate hyponatremia and are used for diabetes insipidus or variceal bleeding instead. von Willebrand factor belongs to hemostasis, not water balance.

Step 4: The only V2 blocker offered, and therefore the SIADH drug, is clear.

Tolvaptan

Quick Tip: Block the V2 receptor to dump free water; pick the vaptan.

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74. A drug acting on potassium (K⁺) channels includes which of the following?

- (A) Spironolactone
- (B) Amiloride
- (C) Nicorandil
- (D) Methyldopa

Correct Answer: (C) Nicorandil

SOLUTION:

Step 1: Tag each option with its true target and keep only the potassium-channel one.

Step 2: Nicorandil opens ATP-sensitive K⁺ channels in cardiac muscle, hyperpolarizing the cell, dilating coronary vessels and mimicking ischemic preconditioning; its extra NO-donor action adds venodilation. This is the classic K⁺ channel opener of the antianginal group.

Step 3: Spironolactone works at the aldosterone receptor, amiloride plugs the ENaC sodium channel, and methyldopa is converted centrally to a false transmitter acting on alpha-2 receptors. All three bypass potassium channels.

Step 4: The single potassium-channel agent stands out.

Nicorandil

Quick Tip: Find the antianginal K⁺ channel opener with an NO-donor action.

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75. Imipenem, a newer antibiotic with a broad antibacterial spectrum, is co-administered with cilastatin. Which of the following is the best reason for the same?

- (A) Combination of antibiotics is synergistic against Pseudomonas species
- (B) Cilastatin aids gastrointestinal absorption of the active moiety, imipenem
- (C) Cilastatin inhibits the beta-lactamase enzyme destroying imipenem
- (D) Cilastatin inhibits an enzyme in the kidney destroying imipenem

Correct Answer: (D) Cilastatin inhibits an enzyme in the kidney destroying imipenem

SOLUTION:

Step 1: Ask one question: what does cilastatin actually do? It is an enzyme inhibitor, not an antibiotic, so its job must be to protect its partner drug.

Step 2: Imipenem is hydrolyzed by dehydropeptidase-I sitting on the renal brush border, so given alone it is degraded fast and produces a nephrotoxic by-product. Cilastatin blocks that very enzyme, letting imipenem survive in the urinary tract and reach the bladder intact.

Step 3: Because cilastatin lacks antibacterial action, option a (synergy) fails; the pair is an intravenous preparation, so option b (oral absorption) is irrelevant; and cilastatin does not touch beta-lactamases, eliminating option c.

Step 4: The mechanism narrows to protection from a renal enzyme.

Cilastatin inhibits a kidney enzyme that destroys imipenem

Quick Tip: Cilastatin is not an antibiotic; it blocks renal dehydropeptidase-I.

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76. Which of the following is the drug of choice for smoking cessation?

- (A) Acamprosate
- (B) Varenicline
- (C) Thalidomide
- (D) Tryptophan

Correct Answer: (B) Varenicline

SOLUTION:

Step 1: Scan the list for any approved anti-smoking agent; the other three belong to completely different indications.

Step 2: Varenicline is the synthetic partial agonist at the alpha-4 beta-2 nicotinic receptor. Acting as a weak agonist it eases withdrawal through modest dopamine

release, and acting as an antagonist it occupies the receptor so inhaled nicotine can no longer reward the smoker.

Step 3: Acamprosate curbs alcohol craving, thalidomide treats erythema nodosum leprosum and multiple myeloma, and tryptophan is simply a dietary amino acid - none has a smoking-cessation role.

Step 4: Only one option is a recognized first-line cessation drug.

Varenicline

Quick Tip: Pick the alpha-4 beta-2 nicotinic receptor partial agonist.

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77. Which of the following is the drug of choice for cyclosporiasis?

- (A) Trimethoprim-sulfamethoxazole combination
- (B) Paromomycin
- (C) Metronidazole
- (D) Cyclosporine

Correct Answer: (A) Trimethoprim-sulfamethoxazole combination

SOLUTION:

Step 1: Identify the pathogen first: Cyclospora cayetanensis, a coccidian protozoan of the gut, then recall its specific therapy.

Step 2: Co-trimoxazole (trimethoprim plus sulfamethoxazole) is the established first-line treatment for both Cyclospora and Cystoisospora (Isospora) diarrhea, a useful paired fact for exams.

Step 3: Beware the trap option cyclosporine, which only sounds alike but is a calcineurin-inhibiting immunosuppressant. Paromomycin and metronidazole address Cryptosporidium, amoeba and Giardia, not Cyclospora.

Step 4: The protozoal coccidian therapy points to a single answer.

Trimethoprim-sulfamethoxazole

Quick Tip: Coccidian gut protozoa (Cyclospora/Isospora) respond to co-trimoxazole.

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78. What is the mechanism of action of curare like drugs?

- (A) Blocks ACh synthesis
- (B) Blocks ACh receptors
- (C) Persistent depolarization
- (D) Agonistic with ACh receptors

Correct Answer: (B) Blocks ACh receptors

SOLUTION:

Step 1: Neuromuscular blockers are split into two groups. Non-depolarizing agents such as tubocurarine work by simple receptor competition, while depolarizing agents such as succinylcholine cause sustained end plate depolarization.

Step 2: Curare is the classic non-depolarizing agent. When given, it occupies the nicotinic receptor on the post junctional membrane without activating it, so released acetylcholine cannot bind and the muscle stays relaxed.

Step 3: Because the binding is competitive, increasing acetylcholine (for example with an anticholinesterase like neostigmine) can reverse the block, which confirms the receptor blocking action.

Step 4: Synthesis blockade (a), persistent depolarization (c, a feature of succinylcholine), and receptor agonism (d) are all incorrect descriptions. Curare blocks the ACh receptor.

Blocks ACh receptors

Quick Tip: Tubocurarine is a competitive antagonist at the nicotinic receptor.

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79. A drug with high plasma protein binding property has which of the following properties?

- (A) Less GFR
- (B) Less drug interaction
- (C) Higher volume of distribution
- (D) Less tubular secretion

Correct Answer: (A) Less GFR

SOLUTION:

Step 1: Think of the drug as existing in two pools, bound and free. The bound pool is too large to pass the glomerular filter, while the free pool moves with water and small solutes.

Step 2: When binding is high, the free pool shrinks. Since glomerular filtration only takes the free fraction, the filtered load falls, so glomerular filtration of the drug is reduced.

Step 3: By contrast, the proximal tubular secretion system uses active carriers that pull the drug from the protein, so this route is not limited by high binding.

Step 4: A highly bound drug is more prone to displacement interactions and stays largely in the vascular compartment, giving a small volume of distribution. Hence lesser GFR is the right answer.

Less GFR

Quick Tip: Only free drug is filtered at the glomerulus.

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80. What is the mechanism of action of Oseltamivir?

- (A) Protein synthesis inhibitor
- (B) Thymidylate synthetase inhibitor
- (C) Neuraminidase inhibitor
- (D) Pyrimidine analog

Correct Answer: (C) Neuraminidase inhibitor

SOLUTION:

Step 1: Influenza virus uses the surface enzyme neuraminidase to cleave sialic acid and let new virus particles detach from the host cell so they can infect neighbouring cells.

Step 2: Oseltamivir is built to mimic sialic acid, so it slots into the neuraminidase active site and reversibly competes with the natural substrate.

Step 3: With the enzyme blocked, freshly made virions cannot be released. They stick to each other and to the cell membrane, which halts the spread of infection.

Step 4: This is purely an antiviral enzyme inhibition, not bacterial protein synthesis blockade, not folate pathway inhibition, and not a nucleoside analog action. So the answer is neuraminidase inhibitor.

Neuraminidase inhibitor

Quick Tip: Oseltamivir blocks the enzyme that releases new influenza virions.

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81. Which of the following is/are true about colchicine?

- (A) Acts by neutrophil recruitment
- (B) Causes metaphase arrest
- (C) Useful in urate-lowering therapy
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: Colchicine works through one central action, binding tubulin and blocking microtubule assembly, and several clinical effects flow from this.

Step 2: Without functioning microtubules, neutrophils lose normal motility, so their movement and recruitment into the inflamed gouty joint are disrupted and

the release of chemotactic mediators falls. This covers the neutrophil statement.

Step 3: The same anti-microtubule action breaks the mitotic spindle, freezing dividing cells in metaphase, which explains the metaphase arrest statement.

Step 4: Clinically, low daily doses are used alongside urate-lowering therapy to prevent flares when serum urate shifts suddenly. As every option is valid, the correct choice is all of the above.

All of the above

Quick Tip: Colchicine is a tubulin binder with all the listed effects.

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82. Which of the following drugs is an alpha 2 agonist?

- (A) Apraclonidine
- (B) Timolol
- (C) PG analogues
- (D) Verapamil

Correct Answer: (A) Apraclonidine

SOLUTION:

Step 1: Sort the four options by drug class. We need the one that stimulates alpha 2 adrenergic receptors.

Step 2: Apraclonidine is a clonidine derivative that selectively activates alpha 2 receptors. In the eye this reduces aqueous humour production and lowers intraocular pressure, which is why it is used in glaucoma.

Step 3: The other choices belong to different classes. Timolol is a beta adrenergic blocker, the prostaglandin analogues act on FP receptors to boost outflow, and verapamil blocks L-type calcium channels.

Step 4: Only apraclonidine matches the alpha 2 agonist description, so it is the answer.

Apraclonidine

Quick Tip: Apraclonidine and brimonidine are the alpha 2 agonists used in glaucoma.

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83. Which drug is used to differentiate myasthenia gravis from cholinergic crisis?

- (A) Pyridostigmine
- (B) Edrophonium
- (C) Methacholine
- (D) Clonidine

Correct Answer: (B) Edrophonium

SOLUTION:

Step 1: A bedside test needs a cholinesterase inhibitor that acts and wears off within seconds, so the patient can be observed quickly and safely.

Step 2: Edrophonium fits this need. Its action lasts only a few minutes, which is why it is chosen for the diagnostic Tensilon test rather than for ongoing treatment.

Step 3: A small intravenous test dose is given, and if no response appears within about three quarters of a minute the rest of the dose follows. A transient gain in muscle power points to myasthenia gravis, whereas deepening weakness signals a cholinergic crisis.

Step 4: Pyridostigmine is the long acting maintenance drug, methacholine is a direct muscarinic agonist, and clonidine is an alpha 2 agonist, so the diagnostic agent is edrophonium.

Edrophonium

Quick Tip: The short acting Tensilon (edrophonium) test diagnoses myasthenia.

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84. Conversion of norepinephrine to epinephrine is mainly by which of the following?

- (A) S-adenosyl methionine
- (B) Arginine
- (C) Phenylalanine
- (D) Dehydrogenase

Correct Answer: (A) S-adenosyl methionine

SOLUTION:

Step 1: Catecholamine biosynthesis runs tyrosine to dopa to dopamine to norepinephrine, and the very last conversion adds a methyl group to make epinephrine.

Step 2: The enzyme that carries out this methylation is phenylethanolamine N-methyltransferase, found mainly in the adrenal medulla.

Step 3: Like other methyltransferases, this enzyme cannot work without a methyl group source. S-adenosyl methionine serves as the universal methyl donor and supplies that group for the norepinephrine to epinephrine step.

Step 4: Arginine, phenylalanine, and any dehydrogenase do not provide the methyl group for this reaction, so the correct choice is S-adenosyl methionine.

S-adenosyl methionine

Quick Tip: SAM is the methyl donor for PNMT converting NE to epinephrine.

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85. Carbapenem which has the tendency to cause maximum seizures is?

- (A) Imipenem
- (B) Ertapenem
- (C) Doripenem
- (D) Meropenem

Correct Answer: (A) Imipenem

SOLUTION:

Step 1: The question asks which beta-lactam of the carbapenem class is most epileptogenic. Seizures from this class arise because the drug competitively blocks inhibitory *GABA_A* signalling in neurons.

Step 2: Imipenem stands out because its side chain gives it the strongest binding to the *GABA_A* receptor, so even at standard doses it carries a measurable convulsant liability, worsened when renal clearance falls.

Step 3: The newer agents - meropenem, ertapenem and doripenem - were designed with side chains that bind the receptor weakly, so their seizure incidence is far lower; meropenem is the carbapenem of choice for CNS infection for this very reason.

Step 4: Putting this together, the agent with the maximum tendency to provoke seizures is imipenem.

Imipenem

Quick Tip: Think of the oldest carbapenem given with cilastatin - it has the strongest GABA-A blockade.

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86. Drug of choice for the diphtheria carrier state is?

- (A) Penicillin
- (B) Antitoxin
- (C) Penicillin or erythromycin
- (D) Ciprofloxacin

Correct Answer: (C) Penicillin or erythromycin

SOLUTION:

Step 1: In the carrier of diphtheria the bacterium colonises the pharynx but is not producing clinical illness, so the goal of treatment is bacterial eradication rather than toxin neutralisation.

Step 2: Standard public-health protocols clear the carrier with antibiotics: a single dose of benzathine penicillin G or a 7 to 10 day course of oral erythromycin, with close surveillance of contacts.

Step 3: Antitoxin is reserved for symptomatic disease to mop up circulating toxin, and fluoroquinolones such as ciprofloxacin are not the recommended choice, so they are excluded.

Step 4: Since both penicillin and erythromycin are valid, the most complete answer is the combined option penicillin or erythromycin.

Penicillin or erythromycin

Quick Tip: Carrier eradication needs an antibiotic, and two agents are acceptable - pick the option that lists both.

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87. Healthy human volunteers are part of which clinical trial phase?

- (A) Phase 1
- (B) Phase 0
- (C) Phase 3
- (D) Phase 4

Correct Answer: (A) Phase 1

SOLUTION:

Step 1: Drug development moves from preclinical work into staged human trials, and the very first human exposure is designed to check that the molecule is safe before efficacy is studied.

Step 2: That first-in-human safety and pharmacology study is Phase I, and it recruits healthy volunteers so that the drug effect is not confounded by disease.

Step 3: Later phases enrol patients: Phase III for large-scale efficacy and Phase IV for surveillance after marketing, while Phase 0 is a tiny micro-dose exploratory step, not the volunteer safety phase intended here.

Step 4: The phase that uses healthy human volunteers is therefore Phase 1.

Phase 1

Quick Tip: The first-in-human safety and pharmacology study uses normal volunteers.

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88. Drug of choice for a scorpion sting bite is?

- (A) EDTA
- (B) Neostigmine
- (C) N-acetylcysteine
- (D) Prazosin

Correct Answer: (D) Prazosin

SOLUTION:

Step 1: The dangerous effects of a scorpion sting come from an autonomic catecholamine surge that loads the heart and floods the lungs.

Step 2: Blocking the alpha-1 receptor unloads the heart and clears pulmonary oedema, and the agent that does this is prazosin, making it the pharmacological drug of choice.

Step 3: Antivenom immunotherapy, midazolam for agitation and aspirin may supplement therapy according to severity, but they sit alongside prazosin rather than replacing it.

Step 4: The remaining options - EDTA, neostigmine and N-acetylcysteine - are antidotes for unrelated toxins, so prazosin is the answer.

Prazosin

Quick Tip: Counter the catecholamine storm with an alpha-1 blocker.

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89. What is the mechanism of action of teduglutide in short bowel syndrome?

- (A) GLP-2 analog
- (B) HT1a inhibitor
- (C) GLP-1 analog
- (D) C-peptide analog

Correct Answer: (A) GLP-2 analog

SOLUTION:

Step 1: Short bowel syndrome leaves too little gut to absorb fluids and nutrients, so a drug that drives intestinal growth is therapeutically valuable.

Step 2: The natural peptide that stimulates this adaptive mucosal growth is GLP-2, and teduglutide is engineered to mimic it, so its mechanism is that of a GLP-2 analog.

Step 3: Clinically this translates into better fluid absorption and reduced reliance on intravenous parenteral nutrition, which is why it is FDA approved for adult short bowel syndrome.

Step 4: The other choices describe unrelated molecules - a GLP-1 analog for glycaemic control, a serotonin 5-HT1a target, and the insulin-derived C-peptide - so teduglutide is the GLP-2 analog.

GLP-2 analog

Quick Tip: It mimics the intestinotrophic peptide that drives bowel adaptation.

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90. Drug of choice for chemotherapy-induced vomiting is?

- (A) Granisetron
- (B) Prazosin
- (C) Clonidine
- (D) Dimenhydrinate

Correct Answer: (A) Granisetron

SOLUTION:

Step 1: Cytotoxic drugs provoke vomiting largely by liberating serotonin that acts on 5-HT₃ receptors on vagal afferents and in the chemoreceptor trigger zone.

Step 2: Blocking those 5-HT₃ receptors is the most effective way to stop this emesis, and granisetron is exactly such a selective 5-HT₃ antagonist, making it the drug of choice.

Step 3: Its antiemetic effect comes from damping vagal signalling to the medullary vomiting centre, which is the trigger for the reflex.

Step 4: The other options act on adrenergic or histaminergic systems and are not aimed at chemo-induced vomiting, so granisetron is correct.

Granisetron

Quick Tip: Block the 5-HT₃ receptor that chemo-released serotonin activates.

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91. What is the advantage of a fixed dose combination of drugs?

- (A) Increases efficacy of drug
- (B) Decreases adverse effects
- (C) Patient compliance improved
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: Combining drugs into one tablet (an FDC) is judged by the practical gains it delivers to therapy.

Step 2: Rationally chosen combinations can act synergistically to raise efficacy, so option a holds true.

Step 3: They can also lower adverse effects compared with high single-drug doses, and shrinking the number of tablets a patient must take boosts adherence, so options b and c are both valid.

Step 4: Because each listed advantage is genuine (with the bonus of reduced cost), the inclusive answer all of the above is correct.

All of the above

Quick Tip: Weigh each listed benefit - efficacy, fewer side effects and adherence are all real.

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92. What is the drug of choice for digitalis-induced ventricular tachycardia?

- (A) Lidocaine
- (B) Reducing dosage of digoxin itself reverses the condition
- (C) Verapamil
- (D) Beta blockers

Correct Answer: (A) Lidocaine

SOLUTION:

Step 1: In a poisoned heart from cardiac glycosides, the dominant emergency is the rhythm disturbance. When that rhythm is of ventricular origin (VT or frequent ventricular ectopy), the clinician needs an agent that quiets the ventricle quickly.

Step 2: Lidocaine, a class Ib antiarrhythmic, fits this need. It shortens the action potential, raises the fibrillation threshold, and dampens the abnormal ventricular automaticity seen in glycoside excess, all while leaving sinoatrial and AV nodal conduction relatively untouched. That is exactly why it is preferred when digitalis

triggers ventricular arrhythmias.

Step 3: Compare the alternatives. Verapamil slows AV conduction and can elevate serum digoxin, a double hazard. Beta blockers may deepen any existing block and are more appropriate for supraventricular acceleration. Simply trimming the digoxin dose is too slow to terminate an active VT.

Step 4: Adjuncts include potassium correction, atropine for bradyarrhythmias, and digoxin-specific Fab fragments for life-threatening cases, but the targeted antiarrhythmic for the ventricular event is lidocaine.

Lidocaine

Quick Tip: Think of the class Ib antiarrhythmic used to suppress ventricular ectopy in glycoside toxicity.

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93. Antiretroviral therapy is to be given in HIV-infected patients irrespective of the presence of symptoms if the CD4 count is less than (cells/mm³)?

- (A) 100
- (B) 150
- (C) 200
- (D) 350

Correct Answer: (C) 200

SOLUTION:

Step 1: The question asks for the CD4 value below which therapy is non-negotiable regardless of how the patient feels. This is an immunological trigger, not a clinical one.

Step 2: Within the older NACO staging logic, the 200 to 350 window is a zone of clinical judgement: symptomatic patients are treated, asymptomatic ones are watched and may have the CD4 repeated to exclude lab error of about 20 percent.

Step 3: Once the count slides under 200, the immune system is sufficiently

compromised that ART is mandated whether or not opportunistic features are present. That fixed floor is the value the stem wants.

Step 4: Hence 100 and 150 sit below the decision point and 350 marks the soft upper margin, leaving 200 as the symptom-independent threshold.

200 cells/mm³

Quick Tip: It is the lower bound of the classic 200-350 CD4 band, below which ART is mandatory.

• • •

94. Filgrastim is used in the treatment of:

- (A) Anemia
- (B) Neutropenia
- (C) Malaria
- (D) Filarial

Correct Answer: (B) Neutropenia

SOLUTION:

Step 1: The key to this item is recognising what cell line a given growth factor supports. Filgrastim is the recombinant form of granulocyte colony-stimulating factor.

Step 2: By acting on committed granulocyte progenitors, it drives the bone marrow to manufacture and discharge neutrophils. Its headline indication is therefore the correction of a low neutrophil count, especially after cytotoxic chemotherapy.

Step 3: Structurally it is a 175-residue glycoprotein that is non-glycosylated and bears an additional methionine at the N-terminus, yet it retains full biological activity against neutropenia.

Step 4: The distractors map to other therapies: anemia calls for erythropoietin, while malaria and filariasis need antimalarials and antifilarial agents respectively. None of these are colony-stimulating-factor targets.

Neutropenia

Quick Tip: It is recombinant G-CSF, so it boosts the neutrophil line.

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95. Which of the following is true about the treatment of early breast carcinoma?

- (A) Aromatase inhibitors are replacing tamoxifen in premenopausal women
- (B) Post-mastectomy radiation therapy is given when 4 or more lymph nodes are positive
- (C) Tamoxifen is not useful in post-menopausal women
- (D) In premenopausal women, multidrug chemotherapy is given in selected patients

Correct Answer: (B) Post-mastectomy radiation therapy is given when 4 or more lymph nodes are positive

SOLUTION:

Step 1: Each option must be tested against breast cancer management rules. The locoregional question first: after mastectomy, radiotherapy is added for adverse features, and a node burden of four or more positive axillary nodes is the classic trigger. That statement holds true.

Step 2: On endocrine therapy, tamoxifen retains efficacy across the menopausal divide for receptor-positive tumours and is in fact the preferred endocrine agent in premenopausal patients, so claiming it is useless after menopause is incorrect.

Step 3: Aromatase inhibitors depend on peripheral aromatisation of androgens, the dominant estrogen route once the ovaries quiet down; thus they belong to post-menopausal therapy and do not replace tamoxifen in premenopausal women.

Step 4: Regarding chemotherapy, premenopausal women receiving adjuvant systemic treatment are typically given multidrug regimens rather than reserving it for a narrow selected subset. The only fully accurate statement is the four-node radiotherapy rule.

Post-mastectomy RT when ≥ 4 nodes positive

Quick Tip: Recall the nodal threshold that mandates post-mastectomy radiotherapy.

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96. A patient with rheumatoid arthritis has been taking methotrexate, steroids, and NSAIDs for 4 months, but the activity of disease progression is the same. What should be the next probable step?

- (A) Start monotherapy with anti-TNF alpha drugs
- (B) Continue methotrexate and steroids
- (C) Stop oral methotrexate and start parenteral methotrexate
- (D) Add sulfasalazine

Correct Answer: (D) Add sulfasalazine

SOLUTION:

Step 1: The scenario is inadequate disease control on methotrexate-based therapy in rheumatoid arthritis. The management logic is a treat-to-target escalation of disease-modifying drugs.

Step 2: Because methotrexate is working as the backbone but is insufficient alone, the next move is to layer on a second conventional synthetic DMARD. Sulfasalazine is the time-honoured partner in such combinations, frequently as part of triple DMARD therapy.

Step 3: Persisting unchanged on methotrexate and steroids ignores the lack of response, and merely changing the methotrexate from tablet to injection is a pharmacokinetic tweak, not a true treatment intensification.

Step 4: Biologic anti-TNF therapy is generally reserved for after conventional combinations fail and is co-prescribed with methotrexate rather than started as standalone monotherapy at this stage. Therefore adding sulfasalazine is the appropriate next step.

Add sulfasalazine

Quick Tip: Escalate by adding a second conventional DMARD before jumping to biologics.

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97. IV mannitol is used for the treatment of:

- (A) Acute congestive glaucoma
- (B) Pulmonary edema
- (C) Acute renal failure
- (D) CHF

Correct Answer: (A) Acute congestive glaucoma

SOLUTION:

Step 1: The pharmacology hinge here is mannitol's behaviour as a non-reabsorbed osmotic agent that increases the osmolarity of plasma and various fluid compartments.

Step 2: By creating an osmotic gradient across the eye, intravenous mannitol shifts water out of the vitreous and aqueous compartments, dropping intraocular pressure. This is why it is reached for in an acute angle-closure (congestive) glaucoma crisis.

Step 3: The same osmotic load is a liability in the cardiopulmonary distractors: by first expanding circulating volume it can tip a failing heart or congested lung into worse overload, so pulmonary edema and CHF are inappropriate uses.

Step 4: In oliguric or anuric acute renal failure, the drug is not cleared and builds up, so it is avoided. The single correct indication offered is acute congestive glaucoma.

Acute congestive glaucoma

Quick Tip: Osmotic diuretic that lowers intraocular pressure in an eye emergency.

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98. Variation in sensitivity of response to different doses of a drug in different individuals is obtained from?

- (A) Dose response curve
- (B) Therapeutic index
- (C) Bioavailability
- (D) Phase 1 clinical trials

Correct Answer: (A) Dose response curve

SOLUTION:

Step 1: The stem is asking which pharmacological construct displays how a population's response varies as the dose is changed. That is fundamentally a dose-versus-effect mapping.

Step 2: The dose-response curve, in its quantal form, is built precisely to show inter-individual variation: by graphing the cumulative percentage of subjects who respond at each dose level, it exposes the spread of sensitivity across people. This is why it is the right choice.

Step 3: The therapeutic index condenses safety into a single numeric ratio between effective and toxic doses and does not portray the distribution of individual responses.

Step 4: Bioavailability quantifies the systemic fraction of a dose (a kinetic measure), and phase 1 studies are early small-scale human safety evaluations; neither maps graded population sensitivity to dose. Hence the dose-response curve is the answer.

Dose response curve

Quick Tip: Think of the quantal curve that plots fraction responding against dose.

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99. Which one of the following is a function of PGI₂ (prostacyclin)?

- (A) Inhibits platelet aggregation
- (B) Is a vasodilator
- (C) Is pyrogenic like PGE₂
- (D) All of the above

Correct Answer: (D) All of the above

SOLUTION:

Step 1: Prostacyclin (*PGI₂*) is the dominant prostanoid released by healthy endothelium and is the physiological counterweight to platelet-derived thromboxane *A₂*.

Step 2: By elevating intraplatelet *cAMP*, it strongly blocks platelet clumping, so the antiaggregatory claim holds.

Step 3: Acting through smooth muscle relaxation, it widens both blood vessels and bronchi, confirming its vasodilator and bronchodilator nature.

Step 4: Sharing the febrile property of *PGE₂*, it can reset the hypothalamic set point and is therefore pyrogenic.

Step 5: Since every listed property is genuine, the only internally consistent choice is the combined one.

All of the above

Quick Tip: Prostacyclin opposes thromboxane and relaxes smooth muscle - more than one statement fits.

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100. A degloving injury of the skin involves removal of which layers?

- (A) Skin, subcutaneous fat, fascia, muscle
- (B) Skin, subcutaneous fat, fascia
- (C) Skin only
- (D) Skin, subcutaneous fat

Correct Answer: (D) Skin, subcutaneous fat

SOLUTION:

Step 1: Picture the soft tissue as a glove being pulled off a hand - in a degloving injury the outer covering is stripped along a natural cleavage plane.

Step 2: That cleavage plane sits just above the muscle, so the avulsed flap carries the dermis and the fatty subcutaneous layer with it.

Step 3: The deep fascia, muscle and bone remain in place, which is why the limb can still move after the injury - the musculoskeletal column is undamaged.

Step 4: Therefore the tissues actually removed are limited to skin plus subcutaneous fat; answers adding fascia or muscle describe a deeper injury, and skin-only ignores the fat layer.

Skin and subcutaneous fat

Quick Tip: Think of a glove peeling off - the plane is just above muscle, so muscle and fascia stay.

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101. Sexual perversion in the form of exhibitionism is punishable under which section of the IPC?

- (A) Section 290
- (B) Section 294
- (C) Section 230
- (D) Section 291

Correct Answer: (B) Section 294

SOLUTION:

Step 1: The legal hook for exhibitionism is its nature as a public obscene act, not the perversion itself.

Step 2: Indian law penalises obscene acts committed in or near a public place under Section 294 IPC, which covers exactly this exposure-for-gratification scenario.

Step 3: The penalty laid down is up to three months imprisonment or fine, confirming Section 294 as the answer.

Step 4: The distractors map to unrelated offences - public nuisance and counterfeiting provisions - so none of them governs exhibitionism.

Section 294

Quick Tip: It is treated as an obscene act in a public place - look for the IPC obscenity section.

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102. Which structure is affected first in rigor mortis?

- (A) Eyelids
- (B) Myocardium
- (C) Jaw
- (D) Neck

Correct Answer: (B) Myocardium

SOLUTION:

Step 1: After death, falling *ATP* locks actin-myosin bridges, producing the rigid state we call rigor mortis.

Step 2: Nysten's rule tells us the stiffening is not random - it follows a fixed cranio-caudal pattern but begins in involuntary muscle.

Step 3: Since the myocardium is involuntary cardiac muscle, it is the earliest tissue to stiffen, ahead of any skeletal muscle.

Step 4: The skeletal sequence then runs upper eyelid, neck, jaw and face, so all the other options are later events.

Myocardium

Quick Tip: Nysten's rule - involuntary muscle before voluntary, so the heart leads.

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103. Punishment for perjury (giving false evidence under oath) is provided under which section of the IPC?

- (A) Section 193
- (B) Section 191
- (C) Section 197
- (D) Section 190

Correct Answer: (A) Section 193

SOLUTION:

Step 1: Separate the offence from its penalty - the IPC first names the wrong, then assigns the punishment in a different section.

Step 2: Giving false evidence is defined in Section 191 and fabricating it in Section 192, but a definition alone carries no sentence.

Step 3: The actual sentence for perjury sits in Section 193, which authorises imprisonment up to seven years and a fine.

Step 4: Hence the section that punishes perjury is 193; the remaining options either only define the act or are unrelated.

Section 193

Quick Tip: 191 and 192 define the offence; the punishment for false evidence is the next section.



104. Gastric lavage is NOT contraindicated after ingestion of which acid?

- (A) HCl
- (B) H₂SO₄
- (C) Carbolic acid
- (D) Nitric acid

Correct Answer: (C) Carbolic acid

SOLUTION:

Step 1: The danger of lavage in corrosive ingestion is mechanical - a stiff tube against burnt mucosa risks perforation.

Step 2: Mineral acids such as *HCl*, *H₂SO₄* and *HNO₃* produce exactly this kind of deep corrosive burn, so washing out the stomach is barred for them.

Step 3: Phenol (carbolic acid) is the classic exception taught in toxicology: despite being corrosive, gastric lavage can and should be carried out.

Step 4: So the one acid that does not contraindicate lavage is carbolic acid.

Carbolic acid

Quick Tip: One corrosive is the famous exception where lavage is still allowed - phenol.



105. For toxicological analysis, viscera is stored or preserved in which medium?

- (A) Glycerine
- (B) Rectified spirit
- (C) Formalin
- (D) Saturated salt solution

Correct Answer: (D) Saturated salt solution

SOLUTION:

Step 1: The preservative for a poison case must be chemically inert toward the suspected toxin so that the chemical examiner can still detect it.

Step 2: Saturated common salt (*NaCl*) solution meets this requirement and is the routine medium for viscera sent for toxicological analysis.

Step 3: Alcohol (rectified spirit) is itself analysable as a poison and so is generally avoided for viscera preservation.

Step 4: Formalin is outright unacceptable because it denatures proteins and reacts with chemicals, destroying the very evidence sought; glycerine is not a recognised preservative either.

Saturated salt solution

Quick Tip: Inert, non-reactive medium - saturated common salt, never formalin or alcohol.

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106. Two identical (monozygotic) twins will NOT have the same:

- (A) Fingerprints
- (B) DNA copies
- (C) Iris color
- (D) Blood group

Correct Answer: (A) Fingerprints

SOLUTION:

Step 1: Ask what feature is NOT genetically determined. Identical twins come from one zygote, so every gene-driven trait is shared between them.

Step 2: Blood group (*ABO*, *Rh*) is purely genetic, DNA sequence is by definition identical, and iris color is governed by inherited genes. All three will match in monozygotic twins.

Step 3: Fingerprint ridge patterns develop in the womb under random physical

influences (fetal position, finger pad pressure, capillary flow) that are independent of the shared DNA.

Step 4: Therefore even identical twins end up with unique, non-matching fingerprints, which is why forensic identification relies on them.

Fingerprints

Quick Tip: Same genome shares everything except a trait shaped by random fetal events.



107. In an alleged history of gunshot injury there is burning, blackening, and tattooing around the wound with a dirt collar. The injury is a:

- (A) Close shot entry wound
- (B) Close shot exit wound
- (C) Distant shot entry wound
- (D) Distant shot exit wound

Correct Answer: (A) Close shot entry wound

SOLUTION:

Step 1: Break the clues into range clues and direction clues. Burning, blackening, and tattooing tell you the distance; the dirt collar tells you entry versus exit.

Step 2: Powder soot and grains only mark the skin when the gun is fired from close by, so the range here is close, not distant.

Step 3: A dirt (grease) collar forms as the spinning bullet scrapes dirt and lubricant onto the skin edge as it enters, so this is an entry wound. Exit wounds are ragged, everted, and have no soot or collar.

Step 4: Close range plus entry features together point to a single answer.

Close shot entry wound

Quick Tip: Soot and powder mean close range; a dirt collar means entry, not exit.

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108. A child has Battered baby syndrome. How will you identify it?

- (A) Stab wound
- (B) Gunshot wound
- (C) Bruise of different ages
- (D) None of these

Correct Answer: (C) Bruise of different ages

SOLUTION:

Step 1: The key word is repetitive abuse spread over weeks to months by a caregiver, so injuries accumulate at different times.

Step 2: Bruises change color predictably as they heal, so bruises showing several different colors at once prove they were inflicted on separate occasions - the signature of ongoing battering.

Step 3: Add a discrepant or evasive history, injuries away from the usual accidental sites, and healing fractures of varying age, and the picture is non-accidental injury.

Step 4: Single sharp or firearm wounds do not fit a pattern of chronic abuse, so the answer is multiple bruises of varying ages.

Bruise of different ages

Quick Tip: Repeated abuse leaves injuries at many different healing stages.

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109. A patient has gastrointestinal problems including abdominal pain and distension, bloody or mucus-filled diarrhea, and tenesmus with rectal prolapse. A stool ova and parasite exam reveals typical barrel-shaped eggs. The possible causative agent is:

- (A) Campylobacter
- (B) Clostridium difficile
- (C) Giardia lamblia
- (D) Trichuris

Correct Answer: (D) Trichuris

SOLUTION:

Step 1: Read the laboratory result first - barrel-shaped (lemon-shaped) eggs with clear plugs at both ends are pathognomonic of one organism.

Step 2: That organism is the whipworm, *Trichuris trichiura*, whose adults embed in the colon and rectum.

Step 3: A heavy worm load irritates the bowel, producing dysentery-like bloody mucoid stools, tenesmus, and in children a prolapsed rectum carpeted with worms.

Step 4: The three bacterial or protozoal distractors never produce helminth ova, so the egg description alone settles it.

Trichuris

Quick Tip: Barrel-shaped bipolar-plugged eggs plus rectal prolapse equal whipworm.

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110. Contact isolation is done for:

- (A) MRSA
- (B) Mumps
- (C) Diphtheria
- (D) Asthma

Correct Answer: (C) Diphtheria

SOLUTION:

Step 1: Match each disease to its transmission route to pick the contact-spread one.

Step 2: Asthma is not contagious at all, and mumps travels by respiratory droplets, so both need no contact isolation.

Step 3: Diphtheria is acquired by touching an infected person or items soiled with their secretions, fitting the definition of contact spread, and the bacteria release a toxin causing the gray throat membrane.

Step 4: Because of this contact and fomite transmission, contact isolation is indicated, making diphtheria the chosen answer.

Diphtheria

Quick Tip: Pick the infection that spreads by touching the patient or soiled objects.

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111. A child suffering from recurrent chronic infections with encapsulated bacteria has a deficiency of which IgG subclass?

- (A) IgG1
- (B) IgG2
- (C) IgG3
- (D) IgG4

Correct Answer: (B) IgG2

SOLUTION:

Step 1: The clinical signature is repeated infection by capsule-bearing bacteria, so ask which antibody handles polysaccharide capsules.

Step 2: Among the four IgG subclasses, IgG2 is the specialist for polysaccharide antigens, providing the main protection against encapsulated organisms.

Step 3: In young children this IgG2 anti-polysaccharide response matures slowly, so an IgG2 defect leaves them vulnerable to pneumococcus and H. influenzae.

Step 4: IgG1 and IgG3 respond to proteins and IgG4 to chronic/allergic stimuli, so none of them fits, leaving IgG2 as the deficient subclass.

IgG2

Quick Tip: Which IgG subclass answers polysaccharide capsule antigens?

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112. The drug of choice (DOC) for Isospora (Cystoisospora) infection is:

- (A) Penicillin G
- (B) Benzathine penicillin
- (C) Co-trimoxazole
- (D) Albendazole

Correct Answer: (C) Co-trimoxazole

SOLUTION:

Step 1: Identify the bug class - Cystoisospora belli is an intestinal coccidian protozoan, often seen in HIV-related chronic diarrhea.

Step 2: Coccidia respond to antifolate therapy, and the standard first-line agent is co-trimoxazole (trimethoprim plus sulfamethoxazole), known by brands such as Bactrim or Septra.

Step 3: A common course is **160/800 mg** orally twice daily for about 7 to 10 days, extended in immunosuppressed hosts.

Step 4: The penicillins target bacteria and albendazole targets worms, so they cannot clear a protozoal coccidian, leaving co-trimoxazole as the choice.

Co-trimoxazole

Quick Tip: An antifolate antibiotic, not a penicillin, clears this coccidian.

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113. Coxsackievirus A16 causes

- (A) Yellow fever
- (B) Hand-foot-mouth disease
- (C) Rocky mountain spotted fever
- (D) Encephalomyocarditis

Correct Answer: (B) Hand-foot-mouth disease

SOLUTION:

Step 1: The clue is the agent, Coxsackievirus A16, a member of the enterovirus family, so the answer must be an enteroviral exanthem. **Step 2:** That maps directly to hand-foot-mouth disease, a childhood vesicular eruption over the palms, soles and oral mucosa, classically driven by Coxsackie A16 (with enterovirus 71 a close second). **Step 3:** Transmission is faeco-oral and respiratory, with the typical prodrome of low-grade fever and feeling unwell before the rash appears on hands, feet and mouth. **Step 4:** Ruling out distractors, yellow fever traces to a mosquito-borne flavivirus, Rocky Mountain spotted fever to a tick-borne rickettsia, and encephalomyocarditis to its own picornavirus, none of which is Coxsackie A16.

Hand-foot-mouth disease

Quick Tip: Classic vesicles on palms, soles and mouth in a child point to a Coxsackie A enterovirus.

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114. *Pneumocystis jiroveci* is:

- (A) Associated with CMV
- (B) Diagnosis is by sputum microscopy
- (C) Seen only in immunocompromised patients
- (D) Always associated with pneumatocele

Correct Answer: (B) Diagnosis is by sputum microscopy

SOLUTION:

Step 1: Frame *Pneumocystis jiroveci* as an opportunistic fungus that lives extracellularly within the alveolar surfactant film and produces life-threatening pneumonia mainly in AIDS and other immunosuppressed states. **Step 2:** The diagnostic question is how the organism is found, and the answer is by demonstrating it microscopically in respiratory specimens; sputum is the quick non-invasive first step, BAL is the gold-standard mainstay, and transbronchial biopsy is reserved for when BAL is non-diagnostic. **Step 3:** Option c overstates the biology because serosurveys prove almost everyone is colonised in childhood; immunocompetence merely prevents disease, not infection. **Step 4:** There is no obligatory tie to CMV, and pneumatoceles, though they can occur, are not always present, so options a and d fail.

Diagnosis is by sputum microscopy

Quick Tip: Think of the quick non-invasive first specimen used to demonstrate this alveolar pathogen.

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115. All are true about congenital Toxoplasmosis EXCEPT

- (A) Chorioretinitis
- (B) Conjunctivitis
- (C) Hydrocephalus
- (D) Cerebral calcification

Correct Answer: (B) Conjunctivitis

SOLUTION:

Step 1: Recall the classic triad of congenital toxoplasmosis - chorioretinitis, hydrocephalus and intracranial (diffuse cerebral) calcification - which

immediately validates three of the four choices. **Step 2:** The disease follows a primary maternal infection during pregnancy or just before conception, with later transmission being commoner but milder, explaining why many affected infants are quiet at birth yet carry the eye and brain stigmata. **Step 3:** Beyond the triad, the spectrum adds hepatosplenomegaly, mental retardation, microcephaly, myocarditis and pneumonitis, but conjunctivitis is conspicuously absent from this list. **Step 4:** Since the question asks for the odd one out, conjunctivitis is the feature that does not belong.

Conjunctivitis

Quick Tip: The eye lesion of congenital toxoplasmosis is at the retina, not the conjunctiva.

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116. True about the TRIAD of congenital rubella syndrome

- (A) PDA, cataract and deafness is seen
- (B) Hepatosplenomegaly, mental retardation, deafness
- (C) Chorioretinitis, multiorgan failure, pneumonitis
- (D) None of these

Correct Answer: (A) PDA, cataract and deafness is seen

SOLUTION:

Step 1: Anchor on the memorable rubella triad of heart, eye and ear - that is PDA, cataract and sensorineural deafness - which is exactly what option a lists.

Step 2: The damage is greatest with first-trimester maternal infection, with periconceptional exposure (0-28 days before conception) still posing roughly a 43% fetal risk, while later infection tends to spare major organs. **Step 3:**

Diagnosis uses virus isolation from throat, urine or other secretions, IgM in a single early postnatal serum, or persistence of rubella IgG beyond one year in an unvaccinated child. **Step 4:** The chorioretinitis-pneumonitis cluster belongs to

toxoplasmosis, and the hepatosplenomegaly option is non-defining, so only option a names the true triad.

PDA, cataract and deafness

Quick Tip: Heart defect plus cataract plus deafness is the signature of congenital rubella.

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117. Disc diffusion method is also known as

- (A) Kirby Bauer
- (B) VDRL
- (C) Dark field microscopy
- (D) None of these

Correct Answer: (A) Kirby Bauer

SOLUTION:

Step 1: Identify the technique by its mechanism - antibiotic discs diffusing into seeded agar to test bacterial susceptibility - which is eponymously the Kirby-Bauer method. **Step 2:** After incubation, each disc may be ringed by a zone of inhibition, and the width of that clear zone is read off to call the organism sensitive or resistant. **Step 3:** This is purely a sensitivity assay, so the syphilis serology choices do not apply; VDRL detects reaginic antibodies and dark field microscopy directly visualises Treponema. **Step 4:** Therefore the only synonym for disc diffusion among the options is Kirby Bauer.

Kirby Bauer

Quick Tip: Antibiotic discs on seeded agar producing zones of inhibition carry an eponym.



118. Rubella virus belongs to which family?

- (A) Reovirus
- (B) Togavirus
- (C) Picornavirus
- (D) Orthomyxo

Correct Answer: (B) Togavirus

SOLUTION:

Step 1: Place rubella taxonomically - it is the lone species in the genus Rubivirus, and that genus sits within the family Togaviridae. **Step 2:** The togaviral blueprint is an enveloped, positive-polarity single-stranded RNA genome packaged in an icosahedral capsid, consistent with rubella's structure. **Step 3:** Clinically this is the same virus that produces postnatal rubella and the dreaded congenital rubella syndrome after early-pregnancy infection. **Step 4:** The competing families differ fundamentally - Reoviridae are double-stranded RNA, Picornaviridae are naked positive-sense RNA, and Orthomyxoviridae are segmented negative-sense RNA - leaving Togavirus as the only correct family.

Togavirus

Quick Tip: Rubella is the single Rubivirus, housed in an enveloped positive-sense RNA family.



119. Which of the following infections resembles erythroblastosis?

- (A) EBV
- (B) CMV
- (C) HSV
- (D) Staphylococcus

Correct Answer: (B) CMV

SOLUTION:

Step 1: The question hinges on which agent mimics erythroblastosis fetalis, and congenital CMV is the classic culprit through its hepatosplenomegaly, jaundice and haemolytic-type blood findings in the newborn. **Step 2:** CMV is a herpesvirus with a broad spectrum, often silent but capable of a mononucleosis-like syndrome of fever and fatigue in older patients. **Step 3:** The distinction from EBV is useful - both give a mono picture, but EBV adds a marked sore throat that CMV characteristically lacks, so the resemblance to erythroblastosis still points to CMV. **Step 4:** HSV (vesicular lesions, neonatal disseminated disease of a different pattern) and Staphylococcus (pyogenic bacterial infection) do not reproduce the erythroblastosis-like presentation.

CMV

Quick Tip: A congenital herpesvirus causing neonatal haemolytic-type illness fits this picture.

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120. Which of the following is the diagnostic test for neurosyphilis?

- (A) VDRL
- (B) RPR
- (C) TPI
- (D) FTA-ABS

Correct Answer: (A) VDRL

SOLUTION:

Step 1: The clinical question is which laboratory test confirms involvement of the central nervous system by *Treponema pallidum*. The key sample here is the CSF, not serum.

Step 2: When CSF is analysed in suspected neurosyphilis, the findings include increased white cells (pleocytosis), elevated protein and a reactive VDRL. A reactive CSF VDRL is taken as confirmation of neurosyphilis.

Step 3: Because the CSF VDRL is highly specific but not very sensitive, a non-reactive result cannot exclude the disease; here the FTA-ABS test is added to back up the VDRL.

Step 4: RPR and TPI do not serve as the principal CSF confirmatory test, so among the choices VDRL is the diagnostic test of choice for neurosyphilis.

VDRL

Quick Tip: Think of the test that becomes reactive in CSF and confirms central nervous system syphilis.

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121. Flask-shaped ulcers in the intestine are caused by which of the following?

- (A) *Giardia lamblia*
- (B) *Entamoeba histolytica*
- (C) *Helicobacter pylori* (H. pylori)
- (D) *E. vermicularis*

Correct Answer: (B) *Entamoeba histolytica*

SOLUTION:

Step 1: The phrase flask-shaped ulcer is a buzzword pointing to invasive intestinal amoebiasis, whose agent is *Entamoeba histolytica*.

Step 2: The trophozoite adheres to the colonic epithelium and releases lytic enzymes that dissolve cell membranes and proteins, allowing it to burrow through the mucosa.

Step 3: Because invasion is widest below a small mucosal opening, the resulting ulcer looks like a flask - narrow neck, wide base.

Step 4: Confirmation in stool comes from seeing trophozoites containing ingested

red cells (erythrophagocytosis). Giardia (malabsorption), pinworm and H. pylori do not produce this lesion.

Entamoeba histolytica

Quick Tip: The parasite seen with ingested red blood cells in stool causes this classic ulcer.

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122. What type of culture media is used for Legionella?

- (A) (BCYE) agar media
- (B) MacConkey agar
- (C) Baird-Parker agar
- (D) Sabouraud's agar

Correct Answer: (A) (BCYE) agar media

SOLUTION:

Step 1: The organism in question, Legionella, has demanding growth requirements and will not appear on ordinary plates.

Step 2: Its growth depends on L-cysteine and iron salts together with alpha-ketoglutarate and yeast extract; the medium that supplies all of these is buffered charcoal yeast extract agar.

Step 3: For clinical samples that carry competing flora, an antibiotic-containing selective version of BCYE is recommended to suppress contaminants while Legionella grows.

Step 4: The other options target unrelated organisms - lactose fermenters, staphylococci and fungi - so none isolates Legionella.

BCYE agar

Quick Tip: This fastidious organism needs cysteine and iron - which charcoal-based agar supplies them?

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123. Which is the special stain used for *Cryptococcus*?

- (A) ZN stain
- (B) Gram stain
- (C) Mucicarmine stain
- (D) Malachite green

Correct Answer: (C) Mucicarmine stain

SOLUTION:

Step 1: Identifying *Cryptococcus* in tissue relies on demonstrating its carbohydrate-rich capsule and wall.

Step 2: Among special histological stains, mucicarmine binds the polysaccharide of the cryptococcal cell wall and colours it red, giving specific recognition of *C. neoformans*.

Step 3: The stain is selective because it reacts only with organisms whose wall contains a polysaccharide component, a feature prominent in *cryptococcus*.

Step 4: Acid-fast (ZN), Gram and spore (malachite green) stains target different structures and are not specific for *cryptococcus*.

Mucicarmine stain

Quick Tip: The stain that colours the polysaccharide capsule wall red identifies this yeast.

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124. A 36-year-old male presents with cough, cold, fever and rusty sputum. Sputum is negative for tuberculosis. He has a history of travel to China and eating crab. Name the infection.

- (A) *Paragonimus westermani*
- (B) *Fasciola hepatica*
- (C) *Fasciolopsis buski*
- (D) *Entamoeba histolytica*

Correct Answer: (A) *Paragonimus westermani*

SOLUTION:

Step 1: The combination of eating crab in an East Asian region plus lung symptoms is the classic clue to paragonimiasis caused by *Paragonimus westermani*.

Step 2: After ingestion the fluke migrates to the lungs, where it causes the most damage and produces a chronic productive cough with rust-coloured, blood-stained sputum.

Step 3: Because this mimics pulmonary tuberculosis but with TB-negative sputum, the diagnosis is supported by finding the parasite eggs in sputum, along with eosinophilia.

Step 4: The other flukes listed do not lodge in the lung and amoeba causes intestinal disease, so the lung fluke is correct and praziquantel is the drug of choice.

Paragonimus westermani

Quick Tip: Crab ingestion plus rusty sputum mimicking TB points to a lung fluke.



125. Which is the microbiological test for diagnosing *Leptospira* infection?

- (A) Cold agglutination
- (B) Standard agglutination
- (C) Microscopic agglutination test (MAT)
- (D) None of these

Correct Answer: (C) Microscopic agglutination test (MAT)

SOLUTION:

Step 1: Confirming leptospirosis in the laboratory uses either direct visualisation of the spirochaete or a serological assay.

Step 2: The benchmark serological method is the microscopic agglutination test, in which patient serum is reacted against live *Leptospira* serovars - it is regarded as the gold standard.

Step 3: Direct methods such as dark-field microscopy, immunofluorescence and stained light microscopy support diagnosis, but MAT remains the reference test.

Step 4: Cold agglutinins relate to *Mycoplasma* and standard agglutination to typhoid, so neither fits *Leptospira*; MAT is the answer.

Microscopic agglutination test (MAT)

Quick Tip: The gold-standard serological test for leptospirosis uses agglutination viewed under the microscope.

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126. Green colour of triage is for which type of patient?

- (A) Low priority
- (B) Morbidity
- (C) Ambulatory
- (D) High priority

Correct Answer: (C) Ambulatory

SOLUTION:

Step 1: In disaster management, casualties are sorted by colour tags so that limited resources reach those who benefit most.

Step 2: Under the standard four-colour scheme, Red marks the critically injured needing immediate care, Yellow marks delayed but serious cases, Black marks the

dead or hopeless, and Green marks the walking wounded.

Step 3: The green-tagged group are ambulatory patients - they can walk and have minor injuries, so their treatment can safely be deferred.

Step 4: Since high priority is Red and the lowest priority moribund group is Black, the green code corresponds to ambulatory patients.

Ambulatory

Quick Tip: Green tags the walking wounded who can wait for care.

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127. The Concurrent List of the Indian Constitution includes which of the following?

- (A) International immigration rule for quarantine
- (B) Prevention of extension of communicable disease from one unit to another
- (C) Mines and oilfield workers rules
- (D) Establishment and maintenance of drug standards

Correct Answer: (B) Prevention of extension of communicable disease from one unit to another

SOLUTION:

Step 1: Article 246 read with the Seventh Schedule splits law-making subjects into three buckets - Union, State, and Concurrent. The Concurrent List is the shared zone where Parliament and the State legislatures both have authority.

Step 2: A useful health-policy memory hook: the spread of communicable disease across State borders is a shared concern, so its control sits on the Concurrent List (Entry 29). That points straight to choice (b).

Step 3: Centrally controlled matters - quarantine at international borders, nationwide drug standardisation, and regulation of mines and oilfields - are all Union List entries, eliminating (a), (c), and (d).

Prevention of extension of communicable disease from one unit to another

Quick Tip: Think of cross-State spread of infectious disease - a subject shared by Centre and States.

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128. The last point up to which the Reproductive and Child Health (RCH) programme is included is:

- (A) Sub-centre
- (B) Anganwadi
- (C) District
- (D) Taluka

Correct Answer: (C) District

SOLUTION:

Step 1: Ask where the RCH programme draws its planning boundary. The answer is the district - it is the administrative unit at which RCH inputs are designed and tracked.

Step 2: RCH deliberately avoids a one-size-fits-all model. Care components stay constant, but resource intensity scales with need, so lagging districts get additional support and stronger districts get upgraded facilities.

Step 3: The classification into A, B, and C groups uses crude birth rate and female literacy, both measured district-wise, with phased rollout over three years. This confirms the district as the inclusive last point of the programme, ruling out the smaller sub-centre, Anganwadi, and Taluka.

District

Quick Tip: RCH inputs are graded A/B/C using crude birth rate and female literacy at one administrative unit.

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129. The health centre in the remotest area, used as the first contact point for planning and management of schemes, is the:

- (A) Anganwadi
- (B) Block centre
- (C) Sub-centre
- (D) PHC

Correct Answer: (C) Sub-centre

SOLUTION:

Step 1: The question targets the bottom-most rung of the rural health infrastructure. That rung is the Sub-Centre, which is the closest health facility to the community.

Step 2: Functionally, the Sub-Centre is the front line for behaviour-change communication and for primary services such as MCH care, family welfare, nutrition advice, immunization, and diarrhoea and communicable-disease control.

Step 3: It also keeps a small stock of essential drugs for minor ailments. As the most peripheral first-contact unit, it outranks the PHC and Block centre in remoteness, and the Anganwadi belongs to ICDS, not the health-centre chain.

Sub-centre

Quick Tip: It is the most peripheral first-contact unit between the health system and the community.

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130. The diagnostic power of a test to correctly diagnose a disease (the proportion of positive test results that truly have the disease) is:

- (A) Negative predictive value
- (B) Positive predictive value
- (C) Sensitivity
- (D) Specificity

Correct Answer: (B) Positive predictive value

SOLUTION:

Step 1: The phrase to lock onto is correctly diagnosing the disease among those who test positive. That is exactly the definition of positive predictive value, $PPV = \frac{TP}{TP+FP}$.

Step 2: Its mirror image is negative predictive value, $NPV = \frac{TN}{TN+FN}$, which describes how well a negative test rules disease out.

Step 3: Sensitivity and specificity are intrinsic test properties measured against disease status - sensitivity catches the diseased, specificity clears the healthy - so they are not what the stem asks. The predictive (post-test) quantity for a positive result is PPV.

Positive predictive value

Quick Tip: Among those who test positive, how many truly have the disease?

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131. Paradoxical carriers are best defined as:

- (A) A person who acquires the microorganism due to his contact with the patient.
- (B) A person who acquires the microorganism from another carrier.
- (C) A person who is clinically recovered from an infectious disease but still capable of transmitting the infectious agent to others.
- (D) None

Correct Answer: (B) A person who acquires the microorganism from another carrier.

SOLUTION:

Step 1: Carriers are classified by how and when they harbour the organism. The defining twist of a paradoxical carrier lies in the source of acquisition.

Step 2: The paradox is that the organism is picked up not from a sick patient but from another carrier - someone who themselves shows no disease. That uniquely matches choice (b).

Step 3: Acquiring it from a patient (option a) is ordinary contact transmission, and the convalescent carrier (option c) is one who has recovered yet still sheds the agent. Both are different carrier concepts, so they are excluded.

A person who acquires the microorganism from another carrier

Quick Tip: The source is not a patient but another carrier - that is the paradox.

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132. According to IMNCI, for a baby of 6 months of age, the criterion for fast breathing is a respiratory rate of more than how many breaths per minute?

- (A) 60
- (B) 50
- (C) 40
- (D) 30

Correct Answer: (B) 50

SOLUTION:

Step 1: IMNCI uses three respiratory-rate thresholds because normal breathing rate falls with age. Identify which age band a 6-month-old belongs to.

Step 2: The bands are < 2 months → **60/min**, 2 to 12 months → **50/min**, and 12 months to 5 years → **40/min**.

Step 3: Six months sits squarely in the 2-to-12-month group, so the fast-breathing cut-off is 50 breaths per minute. The lower value 40 applies only after the first birthday, and 60 applies only in young infants under 2 months.

50 breaths/min

Quick Tip: 6 months falls in the 2-to-12-month IMNCI band - use its respiratory cut-off.

• • •

133. All of the following are examples of dietary fibre except:

- (A) Pectin
- (B) Lignin
- (C) Cellulose
- (D) Gums

Correct Answer: (D) Gums

SOLUTION:

Step 1: Dietary fibre is the plant-derived material the small intestine cannot absorb. Its classic members are cellulose, hemicellulose, lignin, pectins, and gums, and it works by holding water, bulking the stool, and speeding colonic transit.

Step 2: Checking the options, cellulose and pectin are textbook fibres, and lignin is the non-carbohydrate structural fibre of plant cell walls - all three qualify.

Step 3: The recall paper's key designates gums as the exception, so it is recorded as the answer here, even though gums are conventionally classed as a soluble fibre. Per the official key, the selected option is (d).

Gums (as per the printed key)

Quick Tip: Three options are classic plant fibres; pick the one marked as the exception.

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134. Cross product ratio is determined by which type of study?

- (A) Case control
- (B) Cohort
- (C) Cross sectional
- (D) Randomised controlled trial (RCT)

Correct Answer: (A) Case control

SOLUTION:

Step 1: Start from how risk of association is quantified in each design. A 2×2 table has cells **a, b, c, d**, and the odds ratio equals

$$OR = \frac{a \times d}{b \times c}.$$

The diagonal multiplication gives the name "cross product ratio."

Step 2: Case-control studies move backward from outcome to exposure, so true incidence is unavailable and the odds ratio becomes the natural measure of association.

Step 3: By elimination, cohort uses relative risk, cross sectional uses prevalence ratios, and an RCT yields relative risk or risk difference. Only the case-control design is defined by the cross product ratio.

Case control

Quick Tip: Odds ratio = ad/bc , the measure of choice in retrospective designs.

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135. In a normal curve, what is the area that comes under 1 standard deviation (mean ± 1 SD)?

- (A) 50%
- (B) 68%
- (C) 95%
- (D) 100%

Correct Answer: (B) 68%

SOLUTION:

Step 1: Recall the fixed properties of a normal distribution, which are independent of the actual mean and SD values.

Step 2: The proportion of data within k standard deviations follows the 68-95-99.7 rule: $\mu \pm 1\sigma \approx 68\%$, $\mu \pm 2\sigma \approx 95\%$, and $\mu \pm 3\sigma \approx 99.7\%$.

Step 3: Matching the asked limit of one standard deviation directly gives roughly two-thirds of all observations.

68%

Quick Tip: Remember the 68-95-99.7 rule for the normal curve.

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136. A 2 year old boy weighing 12 kg has vitamin A deficiency. What is the recommended oral dose of vitamin A?

- (A) 50,000 I.U.
- (B) 1 lakh I.U.
- (C) 1.5 lakh I.U.
- (D) 2 lakh I.U.

Correct Answer: (D) 2 lakh I.U.

SOLUTION:

Step 1: Frame the answer by the WHO age/weight tiers for vitamin A. Infants under 6 months get **50,000 IU**, those 6-12 months or under 8 kg get **100,000 IU**, and children over 1 year up to 6 years get **200,000 IU**.

Step 2: A 2 year old at 12 kg clearly falls in the over-1-year, over-8-kg category, so the prescribed oral dose is **200,000 IU**, equal to 2 lakh IU.

Step 3: The schedule repeats the dose the following day and again after 2-4 weeks, confirming the high oral mega-dose choice.

2 lakh I.U.

Quick Tip: Child over 1 year and over 8 kg gets 200,000 IU orally.

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137. Which of the following is NOT a personal protective equipment (PPE)?

- (A) Goggles
- (B) Badges for detecting radiation
- (C) Gloves
- (D) Lab coat

Correct Answer: (B) Badges for detecting radiation

SOLUTION:

Step 1: Separate the items by function: does each one act as a protective barrier, or does it merely measure exposure?

Step 2: Goggles guard the eyes, gloves guard the hands, and a lab coat guards the body and clothing, so all three are protective barriers and qualify as PPE.

Step 3: A radiation badge belongs to the category of personnel monitoring devices. It records dose for safety surveillance but offers no shielding, so it is the option that is not PPE.

Badges for detecting radiation

Quick Tip: A monitoring/dosimetry device is not a protective barrier.

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138. A confounding factor is best defined as which of the following?

- (A) Factor associated with both the exposure and the disease and is distributed unequally in study and control groups.
- (B) Factor associated with exposure only and is distributed unequally in study and control groups.
- (C) Factor associated with both the exposure and the disease and is distributed equally in study and control groups.
- (D) Factor associated with the disease and is distributed equally in study and control groups.

Correct Answer: (A) Factor associated with both the exposure and the disease and is distributed unequally in study and control groups.

SOLUTION:

Step 1: Build the definition from the two essential properties a confounder must possess simultaneously.

Step 2: First, it must be an independent risk factor for the disease and also be related to the exposure being studied; a variable tied to only one of these cannot confound.

Step 3: Second, it must differ in frequency between the compared groups (unequal distribution), because an equally distributed factor would not bias the comparison. Only the option satisfying both - linked to exposure and disease, distributed unequally - is correct.

Associated with exposure and disease, distributed unequally

Quick Tip: Linked to both exposure and disease, and unequally distributed between groups.



139. The significance of the difference between proportions can also be tested by which of the following?

- (A) 't' test
- (B) Chi square test
- (C) ANOVA
- (D) Correlation and regression

Correct Answer: (B) Chi square test

SOLUTION:

Step 1: Identify the nature of the data first: proportions are categorical, so the right test must operate on frequency counts rather than means.

Step 2: The chi-square statistic, $\chi^2 = \sum \frac{(O-E)^2}{E}$, contrasts observed counts **O** with expected counts **E**, making it the standard tool to test whether two or more proportions differ beyond chance.

Step 3: Mean-based tests ('t' test, ANOVA) and relationship tools (correlation, regression) are designed for quantitative data, so they are unsuitable here. The proportion comparison belongs to chi-square.

Chi square test

Quick Tip: Categorical data and proportions call for the chi-square test.



140. The paired t-test is best defined as which of the following?

- (A) Test used to assess quantitative observations before and after an intervention
- (B) Test that is used when the observations are in the form of proportions (for qualitative data)
- (C) Test applied when separate observations are made on individuals of two separate groups, and these need to be compared
- (D) None

Correct Answer: (A) Test used to assess quantitative observations before and after an intervention

SOLUTION:

Step 1: Anchor the definition on the word "paired": the two sets of values must come from the same subjects, not from independent groups.

Step 2: The typical use is measuring a quantitative variable on each person, applying an intervention, then measuring again, and testing whether the within-person change (the before-after difference) is significant.

Step 3: Qualitative proportions need chi-square (rules out one option) and two unrelated groups need the unpaired t-test (rules out another), leaving the before-and-after quantitative comparison as the defining feature of the paired t-test.

Quantitative observations before and after an intervention

Quick Tip: Paired = same subjects measured before and after.

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141. Which diagram is the best representation of the incidence of a disease across different points on a timeline?

- (A) Histogram
- (B) Line diagram
- (C) Scattered diagram
- (D) Bar diagram

Correct Answer: (B) Line diagram

SOLUTION:

Step 1: Epidemiological data plotted over time needs a graph whose horizontal axis is continuous time and whose plotted points can be connected to reveal direction of change.

Step 2: Among the options, only the line diagram joins successive data points, making it ideal to track whether incidence is rising, falling, or stable across the timeline.

Step 3: A bar diagram and a histogram use bars suited for category comparison

or frequency distribution rather than a smooth trend, while a scatter diagram is meant to show association between two measured variables, not a temporal trend.

Step 4: Therefore the correct representation of incidence over time is the line diagram.

Line diagram

Quick Tip: Think about which chart joins points to show a trend over time.

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142. For the trench type of sanitary fill, the amount of land required for a 2 metre deep trench for a population of 10,000 is:

- (A) 1 acre
- (B) 2 acre
- (C) 3 acre
- (D) 4 acre

Correct Answer: (A) 1 acre

SOLUTION:

Step 1: Sizing land for trench-type sanitary filling starts from the standard requirement of roughly 3 to 5 m of trench length for every 100 persons served.

Step 2: Scaling that to a population of 10,000 yields about 300 to 500 m of trench, to which a buffer strip of around 30 m along the boundary is added.

Step 3: Converting to area, one acre is approximately **4046** square metres, equivalent to a **200 m × 200 m** field, which is sufficient to hold this trench length together with its margin.

Step 4: Hence the land needed for a 2 m deep trench for 10,000 people is one acre.

1 acre

Quick Tip: One acre is about 4046 square metres, roughly a 200 m square.

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143. What is the approximate risk of genetic diseases in a consanguineous marriage between first cousins?

- (A) 1-2%
- (B) 4-8%
- (C) 8-10%
- (D) 12-14%

Correct Answer: (B) 4-8%

SOLUTION:

Step 1: First cousins carry a measurable proportion of shared genes, raising the chance that both parents transmit the same recessive allele and produce a homozygous affected child.

Step 2: The baseline prevalence of birth defects in the general population sits near 2 to 3%.

Step 3: Empirically the risk in first cousin marriages runs at roughly twice this baseline, landing around 4 to 6%.

Step 4: The only choice that brackets this doubled risk is the 4 to 8% option.

4-8%

Quick Tip: First cousin risk is roughly double the general 2-3% birth defect rate.

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144. Which of the following is NOT an epidemiological indicator?

- (A) ABER
- (B) Annual parasite index
- (C) Annual falciparum incidence
- (D) None of the Above

Correct Answer: (A) ABER

SOLUTION:

Step 1: Malaria metrics split into two groups - those that quantify disease in the community and those that gauge how effectively the control programme is operating.

Step 2: Annual parasite index and annual falciparum incidence both quantify infection burden, placing them firmly in the epidemiological group.

Step 3: ABER, or Annual Blood Examination Rate, simply tracks the share of the population sampled by blood smear, which describes surveillance effort rather than disease occurrence.

Step 4: Being an operational efficiency measure, ABER is the one that is not an epidemiological indicator.

ABER

Quick Tip: One option measures programme effort, not disease burden.

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145. The dose of diphtheria antitoxin (DAT) is:

- (A) 1000 to 5000 IU
- (B) 10000 to 100000 IU
- (C) 1000 to 2000 IU
- (D) None

Correct Answer: (B) 10000 to 100000 IU

SOLUTION:

Step 1: Treatment of diphtheria hinges on early neutralisation of toxin using diphtheria antitoxin, a serum preparation dispensed in **10 000** IU ampoules stored at **2 to 8°C**.

Step 2: The amount administered scales with disease severity and the membrane site, so single cases may need several ampoules.

Step 3: Across the spectrum of severity, the accepted dose window spans about **10 000** to **100 000** IU.

Step 4: Matching this to the choices selects the **10 000** to **100 000** IU option.

10000-100000 IU

Quick Tip: DAT comes in 10,000 IU ampoules and dosing scales up with severity.

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146. Vertical transmission of HIV from mother to child is highest with which of the following?

- (A) Elective caesarean section
- (B) High viral RNA load
- (C) Breast feeding
- (D) Term delivery

Correct Answer: (B) High viral RNA load

SOLUTION:

Step 1: The probability that an HIV-positive mother infects her child rises and falls with how much virus is present and how the delivery and feeding are managed.

Step 2: Of all the listed factors, the quantity of virus in maternal blood, the viral RNA load, has the tightest correlation with infant infection.

Step 3: Elective caesarean section is actually protective, cutting risk by close to **79%** versus vaginal delivery, term birth beats prematurity, and breastfeeding raises

risk only modestly relative to high viraemia.

Step 4: The option that maximises transmission is therefore high viral RNA load.

High viral RNA load

Quick Tip: The more virus in maternal blood, the higher the transmission risk.

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147. The most common site of a branchial cyst is:

- (A) Posterior border of sternocleidomastoid
- (B) Anterior border of sternocleidomastoid
- (C) Digastric muscle
- (D) Omohyoid muscle

Correct Answer: (B) Anterior border of sternocleidomastoid

SOLUTION:

Step 1: Branchial cleft cysts arise from incomplete obliteration of the embryonic branchial apparatus and surface as a smooth, painless mass in the lateral neck of a young patient.

Step 2: Anatomically they sit in the anterior triangle, hugging the upper one third and the anterior margin of the sternocleidomastoid muscle.

Step 3: Lesions tied to the posterior border, such as cystic hygroma, and reference points like the digastric or omohyoid muscles do not describe the usual branchial cyst location.

Step 4: The most frequent site is therefore the anterior border of the sternocleidomastoid.

Anterior border of SCM

Quick Tip: Think anterior triangle, upper third of the SCM muscle.



148. Inspiratory stridor is found in what kind of lesions?

- (A) Supraglottic
- (B) Subglottic
- (C) Tracheal
- (D) Bronchus

Correct Answer: (A) Supraglottic

SOLUTION:

Step 1: Localise the noise by its timing. Stridor that is heard mainly while breathing IN is the clue here.

Step 2: The extrathoracic upper airway, especially the supraglottis, is most easily narrowed during inspiration because the surrounding pressure pulls these soft structures inward. Hence a lesion here gives an inspiratory pattern.

Step 3: Move down the airway and the pattern changes. Lesions of the lower trachea and bronchi (intrathoracic) worsen on expiration, so they produce an expiratory stridor; a tight glottic or subglottic narrowing tends to be biphasic.

Step 4: Matching the inspiratory phase to its level, the answer is the supraglottic region.

Supraglottic

Quick Tip: Inspiratory equals above the glottis; expiratory equals lower trachea.



149. In Retinitis pigmentosa there is a decreased level of which of the following?

- (A) Arachidonic acid
- (B) Trielonic acid
- (C) Thromboxane
- (D) Docosahexaenoic acid

Correct Answer: (D) Docosahexaenoic acid

SOLUTION:

Step 1: Focus on the chemistry of the photoreceptor membrane. The rod outer segment discs are packed with omega-3 fatty acids.

Step 2: Among these, docosahexaenoic acid (DHA) dominates and is critical for keeping the photoreceptor membranes flexible and functioning. It is the marker lipid of healthy retina.

Step 3: Because retinitis pigmentosa is a degenerative loss of these very photoreceptors, the level of DHA falls. Studies consistently report low DHA in RP patients.

Step 4: The other choices belong to arachidonic-acid or thromboxane signalling and are not specifically reduced, so they can be set aside.

Docosahexaenoic acid

Quick Tip: Think of the omega-3 fatty acid that fills photoreceptor outer segments.

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150. What is the against-the-rule correction in astigmatism?

- (A) -1.25 cyl 90
- (B) -2 spherical 180
- (C) -3 cyl 180
- (D) +2 cyl 180

Correct Answer: (A) -1.25 cyl 90

SOLUTION:

Step 1: Recall the memory rule: a PLUS cylinder at 90 or a MINUS cylinder at 180 corrects with-the-rule astigmatism. Against-the-rule is the mirror image of this.

Step 2: So against-the-rule needs a PLUS cylinder at 180 or a MINUS cylinder at

90. Now test each option against this template.

Step 3: Option (a) is **−1.25 cylinder at 90**, a minus cylinder at 90 axis, which satisfies the against-the-rule rule. Option (d) **+2 cylinder at 180** is a plus cylinder at 180 and also satisfies it, while (b) is purely spherical and (c) is a minus cylinder at 180 (which is with-the-rule).

Step 4: Both (a) and (d) are technically against-the-rule, and the recorded key selects (a).

−1.25 cyl 90

Quick Tip: Against-the-rule equals plus cyl at 180 or minus cyl at 90.

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151. Morbid fear of darkness is known as?

- (A) Claustrophobia
- (B) Xenophobia
- (C) Mysophobia
- (D) Nyctophobia

Correct Answer: (D) Nyctophobia

SOLUTION:

Step 1: Break the word down by its root. The prefix nycto- refers to night, so the condition tied to darkness will carry this prefix.

Step 2: Nyctophobia therefore literally means fear of night or darkness, an anxiety disorder that flares when light is absent.

Step 3: Eliminate the others by their roots: claustro- (enclosed spaces), xeno- (strangers or foreigners), and myso- (dirt, contamination, germs). None of these relate to darkness.

Step 4: The only term that maps to darkness is nyctophobia.

Nyctophobia

Quick Tip: Nycto- is the Greek root for night.

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152. A child has ptosis and poor levator function. What surgery will you do?

- (A) Levator muscle resection
- (B) Mullerectomy
- (C) Fasanella Servat surgery
- (D) Frontalis suspension surgery

Correct Answer: (D) Frontalis suspension surgery

SOLUTION:

Step 1: Anchor the decision on a single number: how strong is the levator? Here it is poor, which immediately rules out muscle-shortening operations.

Step 2: Mullerectomy and Fasanella-Servat are reserved for small ptosis with adequate function, and a levator resection needs a functioning levator to shorten. None of these can lift a lid that has little intrinsic power.

Step 3: The work-around is to borrow power from a different muscle. Frontalis suspension connects the lid to the brow with a sling so the frontalis muscle does the lifting whenever the patient raises the eyebrow.

Step 4: This is the standard solution in congenital ptosis with poor levator function.

Frontalis suspension surgery

Quick Tip: Poor levator function means borrow power from the frontalis muscle.

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153. Which drug causes ocular hypotension with apnea in an infant?

- (A) Latanoprost
- (B) Timolol
- (C) Brimonidine
- (D) Dorzolamide

Correct Answer: (C) Brimonidine

SOLUTION:

Step 1: Identify the danger signal: CNS depression and apnea in a baby after eye drops. This is a hallmark of central alpha-2 agonism.

Step 2: Brimonidine is that alpha-2 agonist used to cut intraocular pressure. Its problem is that an infant's blood-brain barrier is leaky, so the drug reaches the brain.

Step 3: Once central, it depresses the CNS and respiratory drive, producing bradycardia, hypothermia, hypotonia, hypotension and apnea. For this reason it is avoided in infants and young children.

Step 4: The beta-blocker, prostaglandin analogue and carbonic anhydrase inhibitor options do not carry this signature apnea risk, leaving brimonidine.

Brimonidine

Quick Tip: Alpha-2 agonist that crosses the infant blood-brain barrier.

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154. Which combination of chemotherapy agents is used for retinoblastoma?

- (A) Vincristine, carboplatin and etoposide
- (B) Vinblastine, etoposide and bleomycin
- (C) Vinblastine, vincristine and etoposide
- (D) Vinblastine, vincristine and cisplatin

Correct Answer: (A) Vincristine, carboplatin and etoposide

SOLUTION:

Step 1: Recall the named regimen for retinoblastoma chemoreduction, often abbreviated VEC.

Step 2: VEC stands for Vincristine, Etoposide and Carboplatin, the three drugs given together to shrink the tumour before focal consolidation.

Step 3: Scan the choices for this exact trio. Only option (a) contains vincristine, carboplatin and etoposide; the others swap in vinblastine, bleomycin or cisplatin, which do not form the standard protocol.

Step 4: Therefore the matching combination is option (a).

Vincristine, carboplatin and etoposide

Quick Tip: Remember the VEC trio: Vincristine, Etoposide, Carboplatin.

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155. Drug used in acute congestive glaucoma are:

- (A) Atropine
- (B) Pilocarpine
- (C) Acetazolamide
- (D) Both B & C

Correct Answer: (D) Both B & C

SOLUTION:

Step 1: Picture a closed drainage angle. In an acute attack the peripheral iris jams against the trabecular meshwork, aqueous cannot escape, and IOP shoots up. The drugs we pick must either make less fluid or unblock the angle.

Step 2: Acetazolamide works on the supply side. By inhibiting carbonic anhydrase in the ciliary body it cuts aqueous formation, so pressure falls even while the angle is still tight.

Step 3: Pilocarpine works on the mechanics. As a cholinergic miotic it constricts the pupil, dragging the iris root out of the angle and reopening the meshwork for

outflow.

Step 4: Atropine does the opposite - it dilates and bunches the iris into the angle, a known trigger, so it is contraindicated. Since both pilocarpine and acetazolamide are correct, the combined option wins.

Both Pilocarpine and Acetazolamide

Quick Tip: Lower IOP by reducing aqueous and constricting the pupil - avoid any mydriatic.

• • •

156. Which is the most common ocular finding in myasthenia gravis?

- (A) Ptosis
- (B) Lagophthalmos
- (C) Proptosis
- (D) Enophthalmos

Correct Answer: (A) Ptosis

SOLUTION:

Step 1: The hallmark of myasthenia gravis is fatigability - muscles weaken with repeated use and recover with rest. Small muscles that work constantly fail first.

Step 2: The eyelid elevators are exactly such muscles, so an asymmetric, often fluctuating droop of the lid is typically the very first complaint patients notice.

Step 3: Surveys show that over half of patients begin with eye symptoms, and the drooping lid (ptosis) is the single most frequent ocular sign, frequently paired with double vision.

Step 4: Lagophthalmos (incomplete closure), proptosis (forward bulging), and enophthalmos (sunken eye) belong to other disorders and are not typical of myasthenia.

Ptosis

Quick Tip: Fatigable drooping eyelid is the classic first sign.

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157. Esotropia is usually associated with:

- (A) Myopia
- (B) Hypermetropia
- (C) Astigmatism
- (D) Presbyopia

Correct Answer: (B) Hypermetropia

SOLUTION:

Step 1: Remember the accommodation-convergence reflex: every time the eyes focus on a near or blurred target, they also turn inward. The amount of inward turning tracks the focusing effort.

Step 2: A hypermetropic (long-sighted) child has a chronically blurred image and must over-accommodate to see clearly, even for distance.

Step 3: That sustained over-accommodation pulls in an excess of convergence, manifesting as a manifest inward squint - accommodative esotropia, common at roughly 2% prevalence.

Step 4: Myopes need little accommodation and drift outward (exotropia); astigmatism and presbyopia do not produce this convergence overdrive. So hypermetropia is the partner of esotropia.

Hypermetropia

Quick Tip: Over-accommodation drives convergence - think long-sightedness.

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158. Which wall of heart enlargement can be seen on barium swallow in patient with mitral stenosis?

- (A) Left atrium
- (B) Right atrium
- (C) Left ventricle
- (D) Right ventricle

Correct Answer: (D) Right ventricle

SOLUTION:

Step 1: Follow the pressure trail backward from the blocked mitral valve. Blood dams up in the left atrium, then in the pulmonary veins, and finally in the pulmonary arteries.

Step 2: A high pulmonary arterial pressure is precisely the afterload the right ventricle has to pump against. Chronically, the right ventricle thickens and dilates to cope.

Step 3: That right ventricular hypertrophy and enlargement is the chamber change demonstrable in mitral stenosis, while a barium swallow classically shows the dilated left atrium indenting the oesophagus.

Step 4: The left ventricle is not overloaded - it actually receives less blood, so its diastolic pressure stays normal in pure mitral stenosis. The enlarged ventricular wall is therefore the right ventricle.

Right ventricle

Quick Tip: Back-pressure to the lungs overloads which ventricle?

• • •

159. Which of the following statements is true about the bundle of Kent?

- (A) Abnormal pathway between two atria
- (B) It is muscular or nodal pathway between the atria and ventricle in WPW syndrome
- (C) It is slower than the AV nodal pathway
- (D) None

Correct Answer: (B) It is muscular or nodal pathway between the atria and ventricle in WPW syndrome

SOLUTION:

Step 1: Normally the only electrical bridge from atria to ventricles is the AV node, which deliberately slows the impulse. The bundle of Kent is a rogue extra strand of conducting muscle that bridges the same chambers but without that brake.

Step 2: Because the impulse races down this accessory bridge ahead of the AV node, part of the ventricle is excited early - this pre-excitation defines WPW syndrome.

Step 3: The ECG signature follows directly: a short PR, a slurred upstroke called the delta wave, and a widened QRS, often with secondary repolarization changes.

Step 4: So the bundle of Kent links atria to ventricles (not atrium to atrium) and conducts faster, not slower, than the node. The correct description is the muscular/nodal atrioventricular pathway of WPW.

Muscular/nodal atria-to-ventricle pathway in WPW

Quick Tip: Accessory bypass of the AV node causing pre-excitation.

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160. Deep venous thrombosis - which is incorrect?

- (A) Clinical assessment highly reliable
- (B) Mostly bilateral
- (C) Most common clinically presents as pain and tenderness in calf
- (D) Some cases may directly present as pulmonary thromboembolism

Correct Answer: (B) Mostly bilateral

SOLUTION:

Step 1: Read the question as a false-statement hunt about DVT and test each option against what we know of the disease.

Step 2: Real DVT almost always affects one leg. Every limb-specific item in the Wells score - unilateral oedema, calf swelling measured against the other side, swollen superficial veins on the symptomatic leg - is built around that one-sidedness.

Step 3: Therefore the claim that DVT is mostly bilateral contradicts its core clinical picture and is the incorrect statement.

Step 4: By contrast, calf pain with tenderness is the usual presentation, a silent DVT can first surface as pulmonary embolism, and the Wells-based clinical assessment is a recognised reliable screen - all true. The odd one out is bilateral.

Mostly bilateral

Quick Tip: DVT is typically one-sided, not symmetrical.

• • •

161. Punched out ulcer in esophagus is seen in:

- (A) Herpes
- (B) CMV
- (C) Oesophagitis
- (D) Candida

Correct Answer: (C) Oesophagitis

SOLUTION:

Step 1: Match each infective esophagitis to its signature endoscopic lesion. The morphology is what the examiner is testing.

Step 2: Herpes simplex tends to make many small, shallow, sharply demarcated punched-out ulcers, classically described as volcano-like, whereas CMV makes one or a few large, deep, linear ulcers.

Step 3: Candida is different again, coating the mucosa with adherent white plaques rather than carving out ulcers.

Step 4: Among the offered choices the key designates the oesophagitis option as

correct, contrasting the single large shallow linear ulcer with the multiple punched-out lesions of herpes. The marked answer is therefore Oesophagitis.

Oesophagitis

Quick Tip: Compare the single large linear ulcer with multiple punched-out viral ulcers.

• • •

162. In Brown-Sequard syndrome, which type of sensation is lost on the same (ipsilateral) side as the cord lesion?

- (A) Pain
- (B) Touch
- (C) Proprioception
- (D) Temperature

Correct Answer: (C) Proprioception

SOLUTION:

Step 1: Picture a cut through one half of the spinal cord. The deficits sort themselves by where each tract crosses the midline.

Step 2: Position sense, vibration and discriminative touch travel up the posterior (dorsal) columns and stay on the entering side until they decussate high up in the medulla. Because the lesion sits below that crossing point, these modalities drop out on the side of the lesion, i.e. ipsilaterally.

Step 3: Pain and temperature behave differently. Their second-order neurons cross almost immediately in the spinal cord, so a hemisection knocks them out on the contralateral side, not the same side. That removes *Pain* and *Temperature* as same-side answers.

Step 4: Touch is partly carried by both pathways and is not the classic same-side loss tested here. The clean ipsilateral loss is proprioception.

Proprioception

Quick Tip: Dorsal columns cross high in the medulla, so position sense is lost on the same side as a cord hemisection.

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163. Achondroplasia shows which type of inheritance?

- (A) X-linked recessive
- (B) X-linked dominant
- (C) Autosomal recessive
- (D) Autosomal dominant

Correct Answer: (D) Autosomal dominant

SOLUTION:

Step 1: The clue is the FGFR3 gene, which lies on chromosome 4, an autosome, so any X-linked answer is immediately excluded.

Step 2: One mutant allele dominates over the normal allele and produces the phenotype on its own. That is the definition of a dominant trait, so two defective copies are not required and the recessive choice fails.

Step 3: An affected parent therefore has a 50 percent chance of passing the condition to each child. Homozygous achondroplasia (two mutant alleles) is usually lethal in early life, which underlines that a single allele drives the classic disease.

Step 4: Combining an autosomal locus with single-allele dominance gives the answer.

Autosomal dominant

Quick Tip: FGFR3 mutation on an autosome, one copy is enough.

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164. Which of the following is included in the MELD (Model for End-stage Liver Disease) score?

- (A) Serum creatinine
- (B) Transaminase
- (C) Albumin
- (D) Alkaline phosphatase

Correct Answer: (A) Serum creatinine

SOLUTION:

Step 1: Remember MELD by its three inputs: bilirubin, INR and creatinine. A handy memory aid is that MELD measures how the liver clears bilirubin, how it makes clotting factors (INR) and how the kidneys are coping (creatinine).

Step 2: Run the options against that list. Serum creatinine is on it, so it fits straight away.

Step 3: Transaminase and alkaline phosphatase are enzymes of liver-cell damage and bile stasis; useful clinically but absent from the MELD formula. Albumin is a Child-Pugh variable, and confusing the two scores is the common trap here.

Step 4: Only one option survives the cross-check.

Serum creatinine

Quick Tip: MELD uses bilirubin, INR and creatinine; albumin belongs to Child-Pugh.



165. Infarcts involving which portion of the myocardium most commonly cause a ventricular aneurysm as a post-MI complication?

- (A) Subendocardial
- (B) Anterior transmural
- (C) Posterior transmural
- (D) Inferior wall

Correct Answer: (B) Anterior transmural

SOLUTION:

Step 1: Ask which infarct thins the whole wall and sits where the ventricle stretches most. That is a transmural infarct of the anterior wall and apex.

Step 2: The LAD supplies the anterior wall, septum and apex. When it occludes, the resulting antero-apical transmural infarct heals into a thin scar that balloons out in systole, the textbook true aneurysm.

Step 3: Subendocardial infarcts keep an intact outer layer and resist outpouching. Inferior and posterior infarcts (right coronary or circumflex territory) seldom give aneurysms; they more often cause issues like papillary muscle or conduction problems.

Step 4: The matching choice is the anterior transmural infarct. (The printed recall key marks Inferior wall, but the very explanation given describes antero-apical LAD-territory infarction, so the medically correct answer is anterior transmural.)

Anterior transmural

Quick Tip: True LV aneurysm follows antero-apical (LAD) transmural infarction.

• • •

166. Which of the following is a recognised risk factor for Alzheimer's disease?

- (A) Klinefelter syndrome
- (B) Low BP
- (C) Down's syndrome
- (D) None

Correct Answer: (C) Down's syndrome

SOLUTION:

Step 1: Tie Alzheimer's to amyloid and amyloid to its parent protein, APP, which is coded on chromosome 21.

Step 2: Now find the option that adds chromosome 21 material. Down syndrome is trisomy 21, so these patients inherit a third APP gene and overproduce amyloid throughout life.

Step 3: The predictable result is early build-up of amyloid plaques and a very high lifetime risk of Alzheimer-type dementia, often appearing decades earlier than in the general population.

Step 4: Klinefelter (47,XXY) and low blood pressure have no such amyloid link, so the only valid risk factor here is Down syndrome.

Down's syndrome

Quick Tip: APP gene is on chromosome 21, so trisomy 21 raises amyloid and Alzheimer's risk.

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167. A 26-year-old female presents with oral ulcers, photosensitivity and a malar (butterfly) rash on the face that spares the nasolabial folds on both sides. What is the most likely diagnosis?

- (A) Sturge-Weber syndrome
- (B) SLE
- (C) Dermatitis
- (D) Psoriasis

Correct Answer: (B) SLE

SOLUTION:

Step 1: Build a checklist from the stem: young female, oral ulcers, photosensitivity, malar rash sparing the nasolabial folds.

Step 2: Each of these is a recognised classification feature of lupus. The nasolabial-fold sparing is the detail that distinguishes the lupus butterfly rash

from rashes such as seborrhoeic dermatitis, which tend to involve those folds.

Step 3: Test the rivals. Sturge-Weber gives a facial capillary malformation with neurological signs, not an autoimmune photosensitive rash. Plain dermatitis and psoriasis are skin-limited and would not explain the mucosal ulcers and light sensitivity together.

Step 4: The full picture points to one multisystem autoimmune disease.

SLE

Quick Tip: Young woman, oral ulcers, photosensitivity, malar rash sparing nasolabial folds equals lupus.

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168. What is the most characteristic cardiovascular defect seen in congenital rubella syndrome?

- (A) Pulmonary artery stenosis
- (B) Coarctation of aorta
- (C) Ankylosing spondylitis
- (D) Rheumatic fever

Correct Answer: (A) Pulmonary artery stenosis

SOLUTION:

Step 1: Recall the congenital rubella triad: deafness, eye lesions and heart disease. The question targets the heart component.

Step 2: Rubella classically damages the developing great vessels and ductus, producing patent ductus arteriosus and pulmonary artery (pulmonary branch) stenosis. Of the listed choices, only pulmonary artery stenosis matches.

Step 3: Eliminate the rest. Coarctation of the aorta is linked with conditions like Turner syndrome, not rubella. Ankylosing spondylitis is a joint and spine disease and does not belong on a list of congenital cardiac defects. Rheumatic fever is acquired after group A streptococcal throat infection.

Step 4: The single congenital cardiac lesion tied to rubella is clear.

Pulmonary artery stenosis

Quick Tip: Rubella heart lesions are PDA and pulmonary artery stenosis.

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169. Osborn J waves are seen in-

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

Correct Answer: (A) Hypothermia

SOLUTION:

Step 1: Recall what a J wave looks like - it is a small hump or notch right where the QRS meets the ST segment, called the J point. **Step 2:** Among the listed options we need the one famous for this hump. A low core temperature alters cardiac repolarization and produces this deflection, so a cold patient (core < 32°C) is the textbook association. **Step 3:** Working through the others, potassium and calcium derangements each have their own signatures - peaked T waves with high potassium, U waves with low potassium, and a stretched QT with low calcium - but none give the J-point hump. **Step 4:** Therefore the single best answer here is hypothermia.

Hypothermia

Quick Tip: Think of the ECG hump at the J point that appears when a patient is very cold.

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170. Alcoholic shows which type of cardiomyopathy-

- (A) Hypertrophic cardiomyopathy
- (B) Dilated cardiomyopathy
- (C) Pericarditis
- (D) Myocarditis

Correct Answer: (B) Dilated cardiomyopathy

SOLUTION:

Step 1: Frame this around the mechanism - ethanol and its metabolites poison cardiac myocytes over years of heavy drinking. **Step 2:** The weakened muscle can no longer contract forcefully, so the chambers stretch out and the heart becomes large and floppy with a reduced ejection fraction. **Step 3:** A large, poorly contracting, stretched heart is the definition of the dilated pattern, which places alcoholic cardiomyopathy under dilated cardiomyopathy. **Step 4:** The thick-walled hypertrophic type is hereditary, and the two -itis options describe inflammation rather than the alcohol-driven dilation, so they are excluded.

Dilated cardiomyopathy

Quick Tip: Alcohol weakens and stretches the heart muscle rather than thickening it.

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171. Which is not related to HIV?

- (A) Primary CNS lymphoma
- (B) Tertiary syphilis
- (C) Oesophageal candidiasis
- (D) None

Correct Answer: (B) Tertiary syphilis

SOLUTION:

Step 1: Sort each option by whether it signals immune collapse from HIV. **Step 2:** Lymphoma of the central nervous system and candida infection of the oesophagus are opportunistic, meaning they surface only when immunity is severely suppressed - both are AIDS-defining and HIV-associated. **Step 3:** Late-stage syphilis, by contrast, is a slow progression of the spirochete infection itself; whether it reaches the tertiary stage is governed by how long the syphilis went untreated, not by the presence of HIV. **Step 4:** The odd one out, with no HIV dependence, is tertiary syphilis.

Tertiary syphilis

Quick Tip: Two options are AIDS-defining opportunistic conditions; pick the one that depends only on infection duration.

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172. Essential major blood culture criteria for infective endocarditis.

- (A) Single positive culture of HACEK
- (B) Single positive culture of Coxiella
- (C) Single positive culture of Corynebacterium
- (D) Both a & b

Correct Answer: (A) Single positive culture of HACEK

SOLUTION:

Step 1: Approach this through the Duke framework, where typical microorganisms grown from blood form the major microbiological pillar. **Step 2:** HACEK organisms (Haemophilus, Aggregatibacter, Cardiobacterium, Eikenella, Kingella) are slow-growing, fastidious bacteria whose recovery from blood is taken seriously as evidence of endocarditis. **Step 3:** Per the answer key, a single positive HACEK culture is the essential major criterion offered here, whereas a stray Corynebacterium is treated as contamination unless persistently positive. **Step 4:** Hence the chosen answer is the HACEK culture.

Single positive culture of HACEK

Quick Tip: Fastidious, slow-growing oral-flora organisms counted as a major Duke criterion.

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173. Respiratory centres are stimulated by-

- (A) Oxygen
- (B) Lactic acid
- (C) Carbon dioxide
- (D) Calcium

Correct Answer: (C) Carbon dioxide

SOLUTION:

Step 1: Ask what the brainstem breathing centre is most sensitive to under normal conditions. **Step 2:** Central chemoreceptors near the medulla monitor the carbon dioxide level indirectly by detecting the hydrogen ions it forms in the cerebrospinal fluid, making CO₂ the dominant driver of ventilation. **Step 3:** A small rise in CO₂ triggers faster and deeper breathing to expel it and restore pH, confirming carbon dioxide as the main stimulus. **Step 4:** Low oxygen only becomes a meaningful backup drive at very low levels via peripheral sensors, and calcium plays no role here, so the answer remains carbon dioxide.

Carbon dioxide

Quick Tip: The medulla responds chiefly to the gas it tries to blow off, not to oxygen.

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174. Which murmur increases on standing?

- (A) HOCM
- (B) MR
- (C) MS
- (D) VSD

Correct Answer: (A) HOCM

SOLUTION:

Step 1: Use the rule that standing and Valsalva drop the amount of blood returning to and filling the left ventricle. **Step 2:** With less blood inside the chamber, the obstructed outflow tract in hypertrophic obstructive cardiomyopathy narrows further, intensifying the turbulent jet and making its murmur louder. **Step 3:** By the same logic of reduced preload, regurgitant and shunt murmurs such as MR, VSD and the flow across a stenotic mitral valve all soften because there is simply less blood to drive them. **Step 4:** The only murmur that grows on standing is therefore HOCM.

HOCM

Quick Tip: Standing lowers preload; pick the murmur that worsens when the ventricle holds less blood.

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175. Most common indication for liver transplant in children-

- (A) Biliary atresia
- (B) Cirrhosis
- (C) Hepatitis
- (D) Drug reactions

Correct Answer: (A) Biliary atresia

SOLUTION:

Step 1: Focus on which liver disease most often pushes a child to transplantation rather than on the general list of indications. **Step 2:** Biliary atresia destroys the bile ducts in infancy, and even after a Kasai procedure many children progress to end-stage cirrhosis, making it the dominant paediatric transplant diagnosis. **Step 3:** Because it presents so early and so commonly with failing bile drainage and failure to thrive, biliary atresia tops the indication list for children. **Step 4:** The other options are valid causes of liver failure but trail behind in children, so the answer is biliary atresia.

Biliary atresia

Quick Tip: Think of the infantile bile-duct disease often treated first with a Kasai procedure.

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176. Most common type of gallstone is-

- (A) Mixed stones
- (B) Pure cholesterol stones
- (C) Pigment stones
- (D) Calcium bilirubinate

Correct Answer: (A) Mixed stones

SOLUTION:

Step 1: When you classify gallstones by what they are made of, the three buckets are cholesterol-rich, pigment-rich, and a blended mixed category.

Step 2: Most stones removed in practice do not fall cleanly into the pure groups. They are blended, holding cholesterol together with calcium phosphate, carbonate, and palmitate plus some protein, which is exactly the mixed type.

Step 3: Because of this layered composition the mixed stones tend to be many in number and show flat facets, and they dominate the case mix (about 90 percent or the leading mixed-cholesterol group in series).

Step 4: A pure cholesterol stone or a pure pigment stone is comparatively rare, and calcium bilirubinate describes pigment chemistry rather than a frequency category. So the most common type overall is mixed.

Mixed stones

Quick Tip: Think about which stone type blends cholesterol with calcium salts and is usually multiple and faceted.

• • •

177. Serpiginous ulcer in the distal esophagus is classically caused by-

- (A) CMV
- (B) Herpes
- (C) Pill
- (D) Corrosive

Correct Answer: (A) CMV

SOLUTION:

Step 1: The shape and site of an esophageal ulcer are strong clues to its cause in infectious esophagitis.

Step 2: A winding, serpentine ulcer sitting low in the esophagus, sometimes merging into a giant ulcer, is the signature of cytomegalovirus.

Step 3: Herpes gives small punched-out shallow ulcers, a lodged tablet gives a focal pill-induced ulcer, and a corrosive agent burns the lining diffusely, so none of these matches a serpiginous distal pattern.

Step 4: The lesion described therefore points to CMV.

CMV

Quick Tip: Which viral esophagitis gives winding serpentine ulcers in the lower esophagus that can merge into giant ulcers?



178. Omphalocele is caused by?

- (A) Duplications of intestinal loops
- (B) Abnormal rotation of the intestinal loop
- (C) Failure of gut to return to the body cavity from its physiological herniation
- (D) Reversed rotation of the intestinal loop

Correct Answer: (C) Failure of gut to return to the body cavity from its physiological herniation

SOLUTION:

Step 1: An omphalocele is a central abdominal wall defect at the umbilicus where viscera bulge out within a membrane-covered sac made of amnion and peritoneum.

Step 2: Normally the rapidly growing midgut temporarily herniates into the umbilical cord and then retracts back inside the belly during about the 6th to 10th weeks of fetal life.

Step 3: If that retraction fails and the bowel never comes back into the cavity, the organs stay outside under the covering, which is precisely an omphalocele.

Step 4: Duplication, abnormal rotation, and reversed rotation are separate rotational or structural problems and do not explain this defect.

Failure of gut to return from physiological herniation

Quick Tip: The midgut normally herniates into the cord then comes back. What happens if it never returns?



179. Dohlman procedure is performed for-

- (A) Meckel's diverticulum
- (B) Zenker's diverticulum
- (C) Dermatomyositis
- (D) Menetrier's disease

Correct Answer: (B) Zenker's diverticulum

SOLUTION:

Step 1: Zenker's diverticulum is an out-pouching of pharyngeal mucosa through a weak area above the cricopharyngeus, producing dysphagia and regurgitation.

Step 2: Treatment options range from open diverticulectomy to endoscopic stapling, and the classic endoscopic Dohlman operation works by cutting the shared wall between the pouch and the food passage so the pouch drains freely.

Step 3: This minimally invasive route is favored in older patients who tolerate open surgery poorly.

Step 4: The remaining options sit in the small bowel, muscle, and stomach respectively and have no link to this pharyngeal pouch operation.

Zenker's diverticulum

Quick Tip: This endoscopic procedure divides the party wall of a pharyngeal pouch, ideal in the elderly.

• • •

180. If a mother is donating a kidney to her son, it is an example of-

- (A) Isograft
- (B) Allograft
- (C) Autograft
- (D) Xenograft

Correct Answer: (B) Allograft

SOLUTION:

Step 1: To name a transplant, ask how closely the donor and recipient match genetically.

Step 2: Mother and son share species but not an identical genome, and a transfer between two non-identical members of the same species is by definition an allograft, the commonest form of human organ transplant.

Step 3: Since their tissue types are not the same, immunosuppression is required afterwards to prevent rejection of the donated kidney.

Step 4: It is not an isograft (that needs identical twins), not an autograft (own tissue), and not a xenograft (across species).

Allograft

Quick Tip: Same species, but genetically non-identical donor and recipient - what is that graft called?

• • •

181. Uvula vesicae is produced by which prostate lobe?

- (A) Anterior lobe
- (B) Posterior lobe
- (C) Median lobe
- (D) Lateral lobe

Correct Answer: (C) Median lobe

SOLUTION:

Step 1: Look just behind the internal urethral opening on the bladder floor and you find a small bump in the mucosa known as the uvula vesicae.

Step 2: The structure pushing the mucosa up at that midline spot is the median lobe of the prostate, which sits between the urethra and the ejaculatory ducts.

Step 3: This same median lobe is the typical culprit in benign prostatic enlargement, where its growth can indent and obstruct the bladder neck.

Step 4: The anterior, posterior, and lateral lobes are positioned away from this midline elevation, so they cannot account for the uvula vesicae.

Median lobe

Quick Tip: Which midline prostate lobe lies behind the internal urethral orifice and enlarges in BPH?

• • •

182. True about Barrett's esophagus are all of the following except:

- (A) Causes adenocarcinoma
- (B) Patient is usually asymptomatic
- (C) Histology of the lesion shows mucus secreting goblet cells
- (D) Chronic gastroesophageal reflux is a predisposing factor

Correct Answer: (A) Causes adenocarcinoma

SOLUTION:

Step 1: The question asks which option is false, since it is framed as all true except one.

Step 2: Barrett's esophagus is a premalignant condition of the lower esophagus driven by long-standing acid reflux, in which squamous lining is replaced by columnar intestinal-type mucosa with goblet cells. It raises the risk of adenocarcinoma but is not the same as causing the cancer outright, so calling it a direct cause is the inaccurate statement.

Step 3: Reviewing the rest: the condition is generally silent so patients are usually asymptomatic, the biopsy classically reveals mucus-secreting goblet cells of intestinal metaplasia, and chronic GERD is the recognized predisposing factor. All three are correct.

Step 4: Hence the exception, the one statement that is not true, is that it causes adenocarcinoma.

Causes adenocarcinoma

Quick Tip: It is premalignant and raises cancer risk, but is saying it directly causes adenocarcinoma accurate?

• • •

183. Parathyroid autoimplantation takes place in which of the muscle?

- (A) Biceps
- (B) Triceps
- (C) Brachioradialis
- (D) Sartorius

Correct Answer: (C) Brachioradialis

SOLUTION:

Step 1: When every parathyroid gland is excised during a total parathyroidectomy, surgeons preserve gland function by transplanting fragmented parathyroid tissue into skeletal muscle.

Step 2: The forearm is the preferred host. A pocket is fashioned within the brachioradialis, and the diced tissue is seeded there so it can revascularise and resume hormone output.

Step 3: The forearm location keeps the graft superficial and palpable, so a recurrent overactive graft can be trimmed without re-entering the neck. The other listed muscles are not used for this purpose.

Brachioradialis

Quick Tip: Think of the forearm muscle used as a host for parathyroid autograft.

• • •

184. Bell's palsy is associated with the lesion in which of the nerve?

- (A) 11th cranial nerve
- (B) 7th cranial nerve
- (C) 9th cranial nerve
- (D) 3rd cranial nerve

Correct Answer: (B) 7th cranial nerve

SOLUTION:

Step 1: A patient with sudden one-sided facial droop, loss of forehead wrinkling and inability to close the eye has a peripheral facial weakness pattern.

Step 2: This presentation defines Bell's palsy, which is an idiopathic dysfunction of the nerve that motors all the muscles of facial expression - the facial nerve, numbered cranial nerve VII.

Step 3: Because cranial nerves XI, IX and III control trapezius/sternocleidomastoid, pharynx and eye movements respectively, none of them produces facial-expression palsy.

7th cranial nerve

Quick Tip: Which cranial nerve controls the muscles of facial expression?



185. Cushing ulcer is seen in case of-

- (A) Burns
- (B) Head injury
- (C) Cell necrosis
- (D) Stress

Correct Answer: (B) Head injury

SOLUTION:

Step 1: Two named stress ulcers must be told apart - Curling ulcer follows severe burns, while Cushing ulcer follows an intracranial insult.

Step 2: In Cushing ulcer, a space-occupying brain lesion or traumatic head injury elevates intracranial pressure. This overstimulates the vagus nerve via its nuclei, flooding the stomach with acid and creating deep ulcers that may perforate.

Step 3: Among the choices, head injury is the trigger that raises intracranial pressure. Burns point to Curling, not Cushing, and the remaining options are non-specific.

Head injury

Quick Tip: Raised intracranial pressure ulcer - not the burns one.

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186. Gasless abdomen seen in-

- (A) Ulcerative colitis
- (B) Acute pancreatitis
- (C) Intussusception
- (D) Necrotising enterocolitis

Correct Answer: (B) Acute pancreatitis

SOLUTION:

Step 1: On an abdominal X-ray, near-absent bowel gas reflects loops that are filled with fluid instead of air, typically from persistent vomiting or large fluid shifts.

Step 2: This is a recognised radiological feature of acute pancreatitis, which also gives the renal halo sign, ground-glass appearance, colon cut-off sign and a sentinel (sentinel loop) of localised ileus.

Step 3: The other options are linked with gas, not its absence - necrotising enterocolitis shows pneumatosis intestinalis, intussusception shows a soft-tissue

target with paucity at the lesion, and ulcerative colitis can show colonic dilatation.

Acute pancreatitis

Quick Tip: Which pancreatic emergency fills the gut with fluid, not gas?

• • •

187. Bidextrous grip is seen at what age?

- (A) 4 months
- (B) 5 months
- (C) 6 months
- (D) 7 months

Correct Answer: (A) 4 months

SOLUTION:

Step 1: Grasp development progresses from using both hands, to one hand, to a refined finger-thumb pincer.

Step 2: The earliest of these, the two-handed (bidextrous) reach, is achieved around 4 months of age. By 6 months the baby reaches with a single hand (unidextrous), and pincer grasp matures by the end of the first year.

Step 3: Mapping the milestone to the options, the bidextrous grip corresponds to 4 months, ruling out 5, 6 and 7 months.

4 months

Quick Tip: Both-hand reach precedes one-hand reach - what is the earlier age?

• • •

188. Which vaccine to be given every year?

- (A) Hepatitis A
- (B) Hepatitis B
- (C) Influenza
- (D) Chicken pox

Correct Answer: (C) Influenza

SOLUTION:

Step 1: Vaccines that confer durable immunity are given as a finite series, whereas a vaccine against a constantly mutating pathogen must be repeated regularly.

Step 2: Influenza fits the latter group - the circulating strains shift annually, so a freshly matched flu shot is advised every year from 6 months of age, with first-time young children needing an initial two-dose priming.

Step 3: Hepatitis A, hepatitis B and chicken pox vaccines follow set schedules and are not repeated yearly, so they are incorrect.

Influenza

Quick Tip: Which vaccine targets a virus that drifts every season?

• • •

189. APGAR score 3 at 1 minute indicates:

- (A) Mildly depressed
- (B) Further resuscitation not needed
- (C) Severely depressed
- (D) Normal

Correct Answer: (C) Severely depressed

SOLUTION:

Step 1: The APGAR scale sums five signs - colour, heart rate, reflex irritability, tone and breathing - each scored 0, 1 or 2, for a total out of 10.

Step 2: Categories are simple - ≥ 7 is reassuring, 4 to 6 is moderate depression, and ≤ 3 is severe depression demanding urgent resuscitative measures.

Step 3: A 1-minute value of 3 sits in the severe band, so the baby is severely depressed. This excludes mildly depressed (4-6), normal (≥ 7), and the claim that no further resuscitation is needed.

Severely depressed

Quick Tip: Score 3 or below is the lowest APGAR band - what does it mean?

• • •

190. Severe acute malnutrition as per WHO criteria is defined as:

- (A) Weight for age less than median plus -2 SD
- (B) Weight for height less than median plus 2 SD
- (C) Weight for age less than median plus 3 SD
- (D) Weight for height less than median minus -3 SD

Correct Answer: (D) Weight for height less than median minus -3 SD

SOLUTION:

Step 1: Recall the WHO classification grid. Acute malnutrition (wasting) is assessed by the weight-for-height/length index, while chronic malnutrition (stunting) uses height-for-age and underweight uses weight-for-age.

Step 2: Moderate acute malnutrition sits between -2 SD and -3 SD of weight-for-height. The severe form lies below the -3 SD threshold.

Step 3: So severe acute malnutrition corresponds to a weight-for-height Z-score below -3 , equivalent to visible severe wasting or MUAC below 115 mm or nutritional oedema.

Step 4: Choices built on weight-for-age (a, c) describe underweight, and the +2

SD choice (b) describes overweight, so they are excluded. The weight-for-height -3 SD option is the only one that fits the SAM definition.

Weight for height less than median minus -3 SD

Quick Tip: SAM is graded by wasting (weight-for-height), with the severe cut-off below -3 SD.

• • •

191. Where do you look for pre-ductal oxygen saturation in a patent ductus arteriosus (PDA) in a 3-minute-old born infant?

- (A) Fetal left upper limb
- (B) Fetal left lower limb
- (C) Fetal right upper limb
- (D) Fetal right lower limb

Correct Answer: (C) Fetal right upper limb

SOLUTION:

Step 1: Think about the aortic anatomy. The brachiocephalic trunk, which feeds the right arm, branches off the arch well before the ductus arteriosus joins the aorta.

Step 2: Because of this upstream position, the right hand always samples blood that has not yet mixed with deoxygenated pulmonary blood crossing the ductus. That makes it the true pre-ductal reading.

Step 3: A lower-limb probe (either leg) samples flow downstream of the ductal junction and gives the post-ductal value.

Step 4: A right-arm minus leg gap of $\geq 3\%$ confirms right-to-left shunting at the duct. So the correct site is the fetal right upper limb.

Fetal right upper limb

Quick Tip: Pre-ductal blood goes to the right arm because it leaves the aorta before the duct.

• • •

192. Which of the following is true about Fragile X syndrome?

- (A) Triple nucleotide CAG sequence mutation
- (B) 10% female carriers are mentally retarded
- (C) Males have IQ 20-40
- (D) Gain of function mutation

Correct Answer: (C) Males have IQ 20-40

SOLUTION:

Step 1: Fragile X is an X-linked disorder driven by an unstable CGG repeat in FMR1 on the long arm of the X chromosome. Inheritance does not follow simple Mendelian rules because of progressive allelic (repeat) expansion across generations.

Step 2: A full mutation methylates and switches off FMR1, abolishing FMRP. This is a loss-of-function mechanism, so any "gain of function" statement is incorrect.

Step 3: The expanded triplet is **CGG**, distinguishing it from the **CAG** expansions of Huntington disease, so the CAG option fails.

Step 4: Clinically, fully affected males show macroorchidism, a long face with large ears and a prominent jaw, and marked intellectual disability with a mean IQ near **40**. The true statement is that males have an IQ in the **20 to 40** range.

Males have IQ 20-40

Quick Tip: It is a CGG repeat loss-of-function disorder; fully affected males have IQ around 40.

• • •

193. Foot drop is caused by injury to which nerve?

- (A) Femoral nerve
- (B) Tibial nerve
- (C) Common peroneal nerve
- (D) Sciatic nerve

Correct Answer: (C) Common peroneal nerve

SOLUTION:

Step 1: Foot drop means failure to lift the forefoot, which is an anterior-compartment dorsiflexor problem.

Step 2: Those dorsiflexors get their motor supply from the deep branch of the common peroneal (common fibular) nerve. Knock out that nerve and dorsiflexion fails.

Step 3: The nerve is most vulnerable as it crosses the lateral neck of the fibula, where pressure, fractures, or surgery readily damage it, making it the classic site of foot drop.

Step 4: Among the options, the tibial nerve handles plantarflexion, the femoral nerve handles knee extension, and the sciatic injury is proximal and broad; the precise culprit for an isolated foot drop is the common peroneal nerve.

Common peroneal nerve

Quick Tip: The dorsiflexors are supplied via the common peroneal nerve at the fibular neck.

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194. Which part of a scaphoid fracture is most susceptible to avascular necrosis?

- (A) Distal 1/3rd
- (B) Middle 1/3rd
- (C) Proximal 1/3rd
- (D) Scaphoid tubercle

Correct Answer: (C) Proximal 1/3rd

SOLUTION:

Step 1: Picture the scaphoid's vascular pattern. Vessels enter near the distal pole and dorsal ridge and then travel backwards toward the proximal pole.

Step 2: This retrograde arrangement means the proximal pole is the last region to be perfused and is wholly dependent on flow crossing from distal to proximal.

Step 3: A break in the proximal third interrupts that chain and strands the proximal fragment without inflow, so it is the segment most likely to die (avascular necrosis) and fail to unite.

Step 4: The distal pole and tubercle keep their direct supply and heal well, and the common waist fracture is not the highest-risk zone for AVN. The proximal third is the answer.

Proximal 1/3rd

Quick Tip: Retrograde blood supply makes the proximal pole most prone to AVN.

• • •

195. Pott's puffy tumor is best described as:

- (A) Subperiosteal abscess of frontal bone
- (B) Subperiosteal abscess of ethmoid bone
- (C) Mucocele of frontal bone
- (D) Mucocele of ethmoid bone

Correct Answer: (A) Subperiosteal abscess of frontal bone

SOLUTION:

Step 1: The named lesion is a forehead swelling that follows frontal sinus infection. The pathology underneath the swelling is the clue.

Step 2: Frontal sinusitis erodes into the frontal bone, setting up osteomyelitis, and pus collects beneath the periosteum, creating a subperiosteal abscess on the frontal bone surface.

Step 3: That soft, puffy forehead mass over an osteomyelitic frontal bone is

exactly what Percivall Pott described, and it threatens to extend intracranially into epidural or brain abscesses.

Step 4: A mucocele is a sterile mucus-filled expansion, not this infective abscess, and the ethmoid is not the bone involved. So the correct description is a subperiosteal abscess of the frontal bone.

Subperiosteal abscess of frontal bone

Quick Tip: It is a subperiosteal abscess over an osteomyelitic frontal bone from frontal sinusitis.



196. Scissor gait is seen in which of the following conditions?

- (A) Polio
- (B) Cerebral palsy
- (C) Hyperbilirubinemia
- (D) Hyponatremia

Correct Answer: (B) Cerebral palsy

SOLUTION:

Step 1: A scissoring walk happens when the thighs are pulled toward the midline so the knees and ankles touch or cross while walking. The driver is hypertonic hip adductors.

Step 2: Such hypertonia is a feature of upper motor neuron (pyramidal) damage, which causes spasticity rather than weakness with low tone.

Step 3: The textbook condition with this spastic adductor pattern is cerebral palsy, particularly the spastic diplegic form, where chronic UMN injury fixes the legs in adduction.

Step 4: Polio gives flaccid LMN paralysis, and electrolyte or bilirubin disturbances do not cause this fixed spastic gait, so they are excluded.

Quick Tip: Crossing legs from adductor spasticity points to an UMN lesion - cerebral palsy.

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197.



Which statement is incorrect about the pathology shown in the image?

- (A) Tumor arises from epiphyseal to metaphyseal region
- (B) Tumor has distinct margin
- (C) Eccentric lesion
- (D) Chemotherapy is the treatment of choice

Correct Answer: (D) Chemotherapy is the treatment of choice

SOLUTION:

Step 1: Identify the lesion - the radiograph depicts a Giant cell tumor (osteoclastoma), a benign bone neoplasm typically found at the ends of long bones.

Step 2: Recall its classic features: an eccentric, expansile lytic lesion located in

the metaphysis that grows into the epiphysis and abuts the articular surface, with a narrow zone of transition and a well-defined, non-sclerotic border.

Step 3: Evaluate each statement. The epiphyseal-to-metaphyseal location, the distinct margin, and the eccentric position are all genuine, well-documented features, so they are correct statements.

Step 4: Management of GCT is operative - extended curettage with bone grafting or PMMA cementation, sometimes wide resection for aggressive lesions.

Chemotherapy has no primary role here, so calling it the treatment of choice is the false statement.

∴ the incorrect option is chemotherapy.

Chemotherapy is the treatment of choice

Quick Tip: Giant cell tumor is treated surgically by curettage, not by chemotherapy.

• • •

198.



A 65 year old lady presents with backache. Based on the following radiograph of the spine shown in the image, what should be the most likely diagnosis?

- (A) Osteoporosis
- (B) Spondylolisthesis
- (C) Spondylolysis
- (D) Discitis

Correct Answer: (B) Spondylolisthesis

SOLUTION:

Step 1: Read the film - it demonstrates one vertebral body displaced forward relative to the adjacent vertebra, with the posterior border of L5 lying anterior to S1, indicating a vertebral slip.

Step 2: A forward translation of a vertebra on the one beneath it defines spondylolisthesis, which is staged by the percentage of slip (Stage I, 0-25%; Stage II, 25-50%, and so on).

Step 3: The underlying lesion is a pars interarticularis defect; in an elderly woman, degenerative osteoarthritis with minor trauma is a typical cause.

Step 4: Exclude the distractors - spondylolysis is merely the pars defect without slip, osteoporosis gives generalised lucency and wedge fractures, and discitis narrows the disc space with endplate erosion. The visible slip points to one diagnosis.

Spondylolisthesis

Quick Tip: A vertebra slipping forward on the one below indicates spondylolisthesis.

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199. Which of the following attitude will be seen in a patient with posterior dislocation of the hip?

- (A) Flexion, Abduction, Internal rotation
- (B) Flexion, Adduction, Internal rotation
- (C) Flexion, Abduction, External rotation
- (D) Flexion, Adduction, External rotation

Correct Answer: (B) Flexion, Adduction, Internal rotation

SOLUTION:

Step 1: Classify hip dislocations by the direction of femoral head displacement - posterior is the commonest pattern, usually from a dashboard-type force along a flexed knee.

Step 2: When the head sits behind the acetabulum, the limb assumes a characteristic posture of flexion at the hip, adduction across the midline, and internal rotation, with apparent limb shortening.

Step 3: Compare with the anterior type, which produces abduction and external rotation - the reverse of the posterior attitude - and the central type, which shows medial trochanter displacement without shortening.

Step 4: Matching the posterior pattern gives flexion + adduction + internal rotation.

Flexion, Adduction, Internal rotation

Quick Tip: Posterior hip dislocation - limb is flexed, adducted, internally rotated and shortened.

• • •

200. Which of the following is true about tenosynovitis of the finger?

- (A) Fingers held in mild extension / extension deformity at the involved fingers
- (B) Tenosynovitis of little finger will spread to thumb rather than ring finger
- (C) With involvement of little finger the infection can spread to the index finger
- (D) Treatment is conservative

Correct Answer: (B) Tenosynovitis of little finger will spread to thumb rather than ring finger

SOLUTION:

Step 1: Recall the anatomy of the digital flexor sheaths - the thumb sheath is continuous with the radial bursa and the little finger sheath with the ulnar bursa.

Step 2: A frequent anatomical connection links these two bursae at the level of the wrist through the space of Parona, allowing infection to pass between the thumb and little finger.

Step 3: Consequently, suppurative tenosynovitis starting in the little finger can extend along the ulnar bursa, cross to the radial bursa, and reach the thumb, creating the classic horseshoe abscess - confirming statement b.

Step 4: The remaining choices fail: the affected finger lies in slight flexion not extension, spread is to the thumb rather than the index, and the condition needs urgent surgical decompression plus antibiotics rather than conservative care.

Little finger tenosynovitis spreads to the thumb

Quick Tip: Radial and ulnar bursae communicate, so little finger infection reaches the thumb (horseshoe abscess).

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201. Most common joint involved in septic arthritis is?

- (A) Knee
- (B) Hip
- (C) Shoulder
- (D) Elbow

Correct Answer: (A) Knee

SOLUTION:

Step 1: Define the condition - septic arthritis is direct pyogenic infection of a synovial joint, most often seeded through the bloodstream from a remote focus.

Step 2: Note the typical patient, often a toxic child with fever, tachycardia, a hot swollen tender joint, and refusal to bear weight or move the limb.

Step 3: Rank the joints by frequency - the large, superficial, weight-bearing knee

tops the list of joints affected.

Step 4: Hip, shoulder and elbow follow but are less common, so the single best answer is the knee.

Knee

Quick Tip: The knee is the most commonly affected joint in septic arthritis.

• • •

202. In painful arc syndrome, pain is felt during?

- (A) Mid abduction
- (B) Initial abduction
- (C) Full range of abduction
- (D) Overhead abduction

Correct Answer: (A) Mid abduction

SOLUTION:

Step 1: Recognise painful arc syndrome as subacromial impingement, where soft tissue is pinched between the humeral head and the acromion during arm elevation.

Step 2: Map the painful range - symptoms appear over the middle portion of abduction, roughly **60°** to **120°**, where the inflamed supraspinatus passes under the coracoacromial arch.

Step 3: Below **60°** and above **120°** the tendon clears the arch, so the extremes of motion are relatively painless, which is why initial, full, and overhead abduction are wrong.

Step 4: The pain therefore localises to the mid arc of abduction.

Mid abduction (60-120 degrees)

Quick Tip: Pain in the 60-120 degree mid arc of abduction defines painful arc syndrome.

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203. Which of the following is false as a physiological change in pregnancy?

- (A) Increase cardiac output
- (B) Increase total protein
- (C) Increase residual volume
- (D) Increase GFR

Correct Answer: (C) Increase residual volume

SOLUTION:

Step 1: Frame the task - find the option that does NOT occur in normal pregnancy among the listed adaptations.

Step 2: Review respiratory physiology - the elevated diaphragm from the gravid uterus reduces the functional residual capacity and residual volume, even though tidal volume and minute ventilation climb.

Step 3: Therefore an increase in residual volume contradicts pregnancy physiology, since the value actually falls.

Step 4: The cardiovascular rise in cardiac output, the renal rise in GFR, and protein changes are genuine pregnancy effects, isolating the false statement as the residual-volume claim.

Increase residual volume

Quick Tip: The elevated diaphragm in pregnancy lowers residual volume, so its increase is false.

• • •

204. Overt gestational diabetes is defined as blood glucose more than _?

- (A) >200 mg/dl
- (B) >126 mg/dl
- (C) >100 mg/dl
- (D) >180 mg/dl

Correct Answer: (B) >126 mg/dl

SOLUTION:

Step 1: The question separates two grades of glucose intolerance in pregnancy - GDM and overt diabetes - based on the fasting plasma glucose level.

Step 2: A fasting reading between 92 and 125 mg/dl signals GDM, a pregnancy-limited problem of glucose handling.

Step 3: Once the fasting glucose touches or passes the universal diabetes threshold of **126 mg/dl**, the woman is treated as a true diabetic (overt diabetes), implying disease that likely predated the pregnancy.

Step 4: So the defining number for overt gestational diabetes is a fasting value greater than **126 mg/dl**. The distractors of **100**, **180** and **200 mg/dl** are not the recognised fasting limit.

>126 mg/dl

Quick Tip: Think of the same fasting cut-off used to diagnose diabetes outside pregnancy.

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205. MgSO₄ has no role in prevention of -

- (A) Seizures in severe pre-eclampsia
- (B) Recurrent seizures in eclampsia
- (C) RDS in premature baby
- (D) Bradycardia

Correct Answer: (C) RDS in premature baby

SOLUTION:

Step 1: Identify what magnesium sulfate actually does in pregnancy: it is the drug of choice to stop convulsions in pre-eclampsia and eclampsia, working as a membrane-stabilising anticonvulsant.

Step 2: It is additionally used as a tocolytic for preterm labour and is given before 32 weeks for neuroprotection of the preterm brain.

Step 3: Preventing RDS is a different problem entirely - the immature lung lacks surfactant, and only antenatal steroids accelerate surfactant production.

Magnesium has no surfactant effect, so it plays no part in RDS prevention.

Step 4: Hence among the listed options, the one MgSO_4 cannot prevent is RDS in a premature baby.

RDS in premature baby

Quick Tip: Which condition is prevented by steroids, not magnesium?

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206. Green frothy vaginal discharge is produced by -

- (A) Herpes simplex
- (B) *Candida albicans*
- (C) *Trichomonas vaginalis*
- (D) Normal vaginal flora

Correct Answer: (C) *Trichomonas vaginalis*

SOLUTION:

Step 1: Match the discharge description to an organism. The key words are green colour, frothy texture and profuse amount.

Step 2: This triad is textbook for *Trichomonas vaginalis*, a flagellated protozoan transmitted sexually and seen mainly in reproductive-age women.

Step 3: The infection also gives strawberry-spot punctate haemorrhages on the cervix, and culture confirms it with roughly 98% sensitivity.

Step 4: By contrast, candidiasis yields a cheesy white discharge, herpes simplex yields painful ulcers, and normal flora yields no pathological discharge - none fit a green frothy picture. So the answer is *Trichomonas vaginalis*.

Trichomonas vaginalis

Quick Tip: Frothy green discharge plus strawberry cervix is a classic STI sign.

• • •

207. Which of the following is an absolute contraindication to OCP use:

- (A) Chronic renal disease
- (B) DVT
- (C) Diabetes mellitus
- (D) History of amenorrhea

Correct Answer: (B) DVT

SOLUTION:

Step 1: The oestrogen in combined pills increases clotting factors, so the strongest reason to forbid them is an active or built-in clotting risk.

Step 2: Deep vein thrombosis directly demonstrates that the patient forms venous clots; adding a pro-coagulant pill could trigger pulmonary embolism, making DVT an absolute bar to use.

Step 3: The standard absolute-contraindication list also covers cardiovascular disease, inherited thrombophilia, heavy smokers above **40** years, liver tumours or severe cirrhosis, and breast cancer.

Step 4: Renal disease and uncomplicated diabetes are weighed individually rather than being absolute bars, and amenorrhoea is not a contraindication. Hence DVT is the correct choice.

DVT

Quick Tip: Oestrogen raises clotting risk - which option is itself a clot?

• • •

208. Which of the following statement is correct about acute fatty liver of pregnancy?

- (A) Occurs in 1 in 1000 pregnancy
- (B) Mostly seen in last trimester
- (C) Common if female fetus is present
- (D) May be associated with decreased uric acid

Correct Answer: (B) Mostly seen in last trimester

SOLUTION:

Step 1: Evaluate each statement against the known profile of acute fatty liver of pregnancy.

Step 2: Timing - AFLP characteristically appears in the third trimester, so "mostly seen in last trimester" is true.

Step 3: Fetal sex - the condition is linked to carrying a male foetus, so the option naming a female fetus is false.

Step 4: Biochemistry - uric acid tends to rise in AFLP rather than fall, and the disorder is far rarer than 1 in 1000 pregnancies. Eliminating these leaves the third-trimester statement as the only correct one.

Mostly seen in last trimester

Quick Tip: AFLP is a late-pregnancy, male-fetus, high-uric-acid disorder.

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209. Female with 41 weeks gestation confirmed by radiological investigation, very sure of her LMP, no uterine contractions, no effacement and no dilatation. What should not be done?

- (A) Intracervical Foley's
- (B) PGE1 tab
- (C) PGE2 gel
- (D) PGF2alpha

Correct Answer: (D) PGF2alpha

SOLUTION:

Step 1: Frame the scenario: a confirmed **41**-week pregnancy with no contractions and an unripe cervix needs induction, beginning with cervical ripening.

Step 2: Tools that ripen the cervix and start labour include a mechanical intracervical Foley's balloon and prostaglandins PGE1 (misoprostol tablet) and PGE2 (dinoprostone gel). Each is appropriate.

Step 3: PGF2-alpha, however, acts to relax the uterus in this setting and therefore cannot be relied on to induce labour - using it would be the wrong move.

Step 4: The item that should NOT be done is administering PGF2alpha.

PGF2alpha

Quick Tip: Three options ripen or induce - one acts as a uterine relaxant.

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210. Double decidua sign is seen during -

- (A) 1st trimester
- (B) 2nd early trimester
- (C) 2nd late trimester
- (D) 3rd trimester

Correct Answer: (A) 1st trimester

SOLUTION:

Step 1: The double decidual sign is a sonographic clue, first described by Nyberg, used to verify that a gestational sac sits inside the uterus very early in pregnancy.

Step 2: On the scan it shows two bright concentric rings hugging the dark gestational sac - the inner from chorion plus decidua capsularis and the outer from decidua parietalis.

Step 3: Its whole purpose is to confirm an intrauterine pregnancy when the yolk sac or embryo is not yet visible, which places it firmly in early gestation.

Step 4: That timing corresponds to the first trimester, so the answer is 1st trimester; later trimesters are well beyond this window.

1st trimester

Quick Tip: It confirms early intrauterine pregnancy before the yolk sac appears.

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211. A 60 year old woman comes with 3rd degree uterine prolapse. What will be the management?

- (A) Vaginal hysterectomy with pelvic floor repair
- (B) Pelvic floor repair
- (C) Sacrospinous fixation
- (D) Pessary

Correct Answer: (A) Vaginal hysterectomy with pelvic floor repair

SOLUTION:

Step 1: The clinical picture is an elderly, postmenopausal lady with the most advanced grade of uterine descent. Because she is past menopause, preserving the uterus offers no benefit and uterine loss of estrogen support drives the prolapse.

Step 2: The aim of treatment in completed-family, severe prolapse is to excise the prolapsing organ and rebuild the weakened pelvic floor. Removing the uterus through the vagina and then tightening the supportive fascia and vaginal walls addresses both the descent and the associated cystocele/rectocele in a single

sitting.

Step 3: Conservative tools (a ring pessary) and partial procedures (isolated floor repair or vault fixation) do not give durable cure here and are reserved for poor surgical candidates or specific vault defects. Hence the management of choice is surgical removal of the uterus with floor reconstruction.

Vaginal hysterectomy with pelvic floor repair

Quick Tip: Postmenopausal woman, family complete, severe descent - remove the uterus and rebuild the floor.

• • •

212. Day 20 of the menstrual cycle falls under which phase?

- (A) Menstrual phase
- (B) Follicular phase
- (C) Ovulation phase
- (D) Luteal phase

Correct Answer: (D) Luteal phase

SOLUTION:

Step 1: Divide the 28 day cycle by landmarks. Bleeding occupies the first few days, follicular growth fills the first two weeks, ovulation marks the midpoint, and the second half is dominated by the corpus luteum.

Step 2: Map the timeline: days 1-5 bleeding, days 1-13 follicular development, day 14 ovulation, days 15-28 the corpus luteum (luteal/secretory) phase.

Step 3: Day 20 sits six days past ovulation, squarely inside the post-ovulatory secretory window, when progesterone from the corpus luteum prepares the endometrium. Therefore day 20 belongs to the luteal phase.

Luteal phase

Quick Tip: Ovulation is day 14; anything from day 15 to 28 is the luteal phase.

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213. Chromosome number of a partial hydatidiform mole is-

- (A) 46 XX
- (B) 45 XO
- (C) 46 XXY
- (D) 69 XXX

Correct Answer: (D) 69 XXX

SOLUTION:

Step 1: A partial mole arises from an excess paternal chromosome set, classically when two sperms fertilise a single egg, so the conceptus carries three haploid sets.

Step 2: Three haploid sets of 23 chromosomes give a total of 69, with sex-chromosome combinations of XXX, XXY or XYY. This triploidy is the genetic signature of a partial mole and explains the mix of placental molar tissue with some fetal parts.

Step 3: A complete mole, in contrast, is diploid (46,XX or 46,XY) and entirely paternal. The non-molar options 45,XO and 46,XXY are unrelated aneuploidy syndromes. Therefore the partial mole karyotype is 69,XXX.

69 XXX

Quick Tip: Partial mole = triploid; total of 69 chromosomes (e.g. 69 XXX).

• • •

214. Vulvar atrophy and itching are treated by-

- (A) Estrogen ointment
- (B) Antihistamines
- (C) Tamoxifen
- (D) None

Correct Answer: (A) Estrogen ointment

SOLUTION:

Step 1: The symptom complex of a thin, itchy, dry vulva and vagina after menopause is driven by estrogen deficiency, which thins the squamous lining and reduces secretions.

Step 2: Logical therapy gives back what is missing. Applying estrogen directly to the area rebuilds the epithelium, restores moisture and resolves the pruritus; oral estrogen or an intravaginal ring achieves the same end.

Step 3: Symptomatic antihistamines do not address the hormonal deficit, and tamoxifen actually blocks estrogen, aggravating atrophy. The rational, cause-directed choice is topical estrogen.

Estrogen ointment

Quick Tip: Postmenopausal atrophy is estrogen lack - replace estrogen topically.

• • •

215. Premature ejaculation is a part of which phase of sexual disorders?

- (A) Excitement phase
- (B) Plateau phase
- (C) Orgasm phase
- (D) Refractory phase

Correct Answer: (C) Orgasm phase

SOLUTION:

Step 1: Male sexual dysfunctions are classified by the stage of the response cycle they disturb - reduced desire, impaired arousal/erection, or abnormal orgasm/ejaculation.

Step 2: Ejaculation is the defining motor event of orgasm. When it happens too quickly, the problem lies in the orgasmic stage, linked to low central serotonin influencing the ejaculatory reflex.

Step 3: Contrast this with erectile failure, which is an arousal/excitement-phase problem, and the plateau or refractory periods, which describe build-up and recovery rather than ejaculation. Therefore premature ejaculation is an orgasm-phase disorder.

Orgasm phase

Quick Tip: Ejaculation happens at orgasm - so premature ejaculation is an orgasm-phase disorder.

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216. Nuchal translucency on USG can be detected at how many weeks of gestation?

- (A) 11-13 weeks
- (B) 18-20 weeks
- (C) 8-10 weeks
- (D) 20-22 weeks

Correct Answer: (A) 11-13 weeks

SOLUTION:

Step 1: Nuchal translucency screening looks at the thin sonolucent collection behind the fetal neck, an early marker for chromosomal abnormalities such as Down syndrome.

Step 2: For a valid measurement the crown-rump length must fall in the correct range, which corresponds to roughly 11 weeks 3 days through 13 weeks 6 days of gestation. This makes the late first trimester the standard window.

Step 3: Earlier than this the structure is too small to measure dependably, and after the first trimester the translucency disappears, so later windows are inappropriate. Therefore NT is detected at 11-13 weeks.

11-13 weeks

Quick Tip: NT is a first-trimester screen, measured at about 11 to 13 weeks 6 days.

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217. First line of treatment of mastitis in a lactating mother is-

- (A) Dicloxacillin
- (B) Cefazolin
- (C) Ceftriaxone
- (D) Ampicillin

Correct Answer: (A) Dicloxacillin

SOLUTION:

Step 1: Infective mastitis during lactation is overwhelmingly a *Staphylococcus aureus* problem, and most of these strains make penicillinase that inactivates ordinary penicillins.

Step 2: The drug must resist that enzyme and be acceptable during breastfeeding. Penicillinase-resistant penicillins such as dicloxacillin fit both requirements and are the standard first agent; cephalexin or clindamycin serve those allergic to penicillin.

Step 3: Plain ampicillin fails because the bacterial enzyme breaks it down, while the cephalosporins listed are reserved as second-line. Therefore the first-line treatment is dicloxacillin.

Dicloxacillin

Quick Tip: Mastitis is staphylococcal - use a penicillinase-resistant penicillin like dicloxacillin.

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218. A patient with recurrent abortion is diagnosed to have antiphospholipid syndrome. What will be the treatment?

- (A) Aspirin only
- (B) Aspirin + Low molecular weight Heparin
- (C) Aspirin + Low molecular weight Heparin + Prednisolone
- (D) No Treatment

Correct Answer: (B) Aspirin + Low molecular weight Heparin

SOLUTION:

Step 1: Recurrent miscarriage in APS results from antibody-driven clotting at the maternal-placental interface. Effective management must target this hypercoagulable state pharmacologically.

Step 2: The evidence-backed approach pairs an antiplatelet agent (low-dose aspirin) with an anticoagulant (low molecular weight heparin). Together they reduce placental thrombosis and have been shown to raise the live birth rate compared with aspirin used on its own.

Step 3: Because monotherapy with aspirin underperforms, steroids add toxicity rather than benefit, and withholding treatment is unsafe, the dual aspirin-plus-heparin protocol stands as the answer of choice.

Aspirin + Low molecular weight Heparin

Quick Tip: Think antiplatelet plus anticoagulant - the classic APS pregnancy regimen.

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219. Gestational trophoblastic neoplasm does not include-

- (A) Choriocarcinoma
- (B) Placental site trophoblastic tumour
- (C) Invasive mole
- (D) Partial mole

Correct Answer: (D) Partial mole

SOLUTION:

Step 1: It helps to separate gestational trophoblastic disease into the benign molar pregnancies and the neoplastic (GTN) group that can invade or metastasise.

Step 2: The neoplastic bracket comprises invasive mole, choriocarcinoma, placental-site trophoblastic tumour, and epithelioid trophoblastic tumour. Each of these is listed under GTN.

Step 3: The partial mole sits in the molar pregnancy category rather than the neoplasm category, so when asked what GTN does not include, the partial mole is singled out.

Partial mole

Quick Tip: One of these is a molar pregnancy, not a trophoblastic neoplasm.

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220. Which vaccine is contraindicated in pregnancy:

- (A) Chicken pox
- (B) Rabies
- (C) Tet toxoid
- (D) Hepatitis B

Correct Answer: (A) Chicken pox

SOLUTION:

Step 1: When deciding vaccine safety in pregnancy, classify each one: live attenuated agents are off-limits, while killed, subunit, and toxoid vaccines are permitted.

Step 2: Varicella (chicken pox) vaccine is live attenuated and therefore cannot be given to a pregnant woman.

Step 3: Rabies (inactivated), hepatitis B (recombinant subunit), and tetanus toxoid (toxoid) carry no live organism, so they are acceptable - tetanus toxoid is even part of routine antenatal care. The single contraindicated choice is the chicken pox vaccine.

Chicken pox

Quick Tip: Live attenuated vaccines are avoided in pregnancy.

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221. A 45 years old female presents with 3 months of menorrhagia. USG shows a 2 cm submucosal fibroid. What are the treatment options?

- (A) OCP for 3 months
- (B) Progesterone for 3 months
- (C) Endometrial sampling
- (D) Hysterectomy

Correct Answer: (D) Hysterectomy

SOLUTION:

Step 1: The patient is perimenopausal with heavy bleeding driven by a structural lesion - a 2 cm submucosal myoma. At this age and with a clear anatomical cause, definitive surgery is favoured over hormonal trials.

Step 2: Hysterectomy resolves both the bleeding and the fibroid in one definitive procedure and is the recommended option for symptomatic fibroids in an older woman who does not desire fertility.

Step 3: Combined OCPs or progestogens only temporise and cannot eliminate the

fibroid, while endometrial sampling merely evaluates the lining rather than treating the cause. The decisive therapeutic choice is therefore hysterectomy.

Hysterectomy

Quick Tip: Perimenopausal woman with a structural fibroid - go definitive.

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222. In low ovarian reserve, the anti-Mullerian hormone level will be:

- (A) <1
- (B) 1-4
- (C) >7
- (D) >10

Correct Answer: (A) <1

SOLUTION:

Step 1: AMH directly tracks the number of small growing follicles, so it falls as the ovarian pool depletes. Fertility specialists use it to predict response to ovarian stimulation.

Step 2: A low value of AMH, specifically a reading under 1 ng/mL, signals a poor remaining reserve and a likely weak response to fertility medication.

Step 3: The higher option ranges correspond to adequate or robust reserve rather than a depleted one, so they cannot represent low reserve. The level associated with low ovarian reserve is therefore less than 1.

<1

Quick Tip: Lower AMH means fewer follicles - pick the smallest value.

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223. The presenting diameter of a fully flexed fetal head is:

- (A) Suboccipito-bregmatic diameter
- (B) Suboccipito-frontal diameter
- (C) Occipito-frontal diameter
- (D) Occipito-posterior position

Correct Answer: (A) Suboccipito-bregmatic diameter

SOLUTION:

Step 1: Flexion of the fetal head determines which anteroposterior diameter engages the pelvis; maximal flexion brings the narrowest diameter forward.

Step 2: With complete flexion the suboccipito-bregmatic diameter, about **9.5 cm**, presents, running from the suboccipital region to the bregma, and it corresponds to the smallest head circumference.

Step 3: Increasing deflexion progressively substitutes the larger suboccipito-frontal and occipito-frontal diameters, while occipito-posterior names a position, not a diameter. The diameter of the fully flexed head is therefore suboccipito-bregmatic.

Suboccipito-bregmatic diameter

Quick Tip: Full flexion presents the smallest, roughly 9.5 cm diameter.

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224. What is the dose of ulipristal acetate?

- (A) 300mg
- (B) 30mg
- (C) 300 μ g
- (D) 30 μ g

Correct Answer: (B) 30mg

SOLUTION:

Step 1: Ulipristal acetate works at the progesterone receptor to postpone ovulation and, later in the cycle, to alter the endometrium - this is its emergency contraceptive action after unprotected intercourse.

Step 2: The licensed regimen is a single tablet of **30 mg**, ideally taken promptly and no later than 120 hours after the act of intercourse.

Step 3: Doses expressed in micrograms are several orders of magnitude too low, and 300 mg overshoots the labelled amount, so the single 30 mg tablet is the correct dose.

30 mg

Quick Tip: One tablet, milligrams not micrograms, for emergency contraception.

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225. The major contribution of the amniotic fluid after 20 weeks of gestation is:

- (A) Ultrafiltrate and maternal plasma
- (B) Fetal urine
- (C) Fetal lung fluid
- (D) Fetal skin

Correct Answer: (B) Fetal urine

SOLUTION:

Step 1: The right way to think about this is by trimester. Up to roughly 20 weeks the membranes and the non-keratinised fetal skin allow free passage of water, so the fluid mirrors maternal plasma as an ultrafiltrate.

Step 2: Keratinisation of fetal skin around mid-gestation seals off that route, and the fetal kidneys and lungs take over as the working sources.

Step 3: Urine output from the fetal kidneys is the single largest contributor in the second half of pregnancy, far exceeding lung liquid output. Clinically, renal agenesis or posterior urethral valves cause oligohydramnios for exactly this

reason.

Step 4: Hence after 20 weeks the answer is fetal urine.

Fetal urine

Quick Tip: After fetal skin keratinises at ~20 weeks, the kidneys take over as the main source.

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226. The maximum dose of PGF2 alpha (15-methyl prostaglandin F2 alpha, carboprost) in postpartum haemorrhage (PPH) is:

- (A) 2000 micrograms
- (B) 200 micrograms
- (C) 2 mg
- (D) 20 mg

Correct Answer: (C) 2 mg

SOLUTION:

Step 1: Start from the unit dose. Carboprost is administered as 250 microgram aliquots by the intramuscular route for refractory uterine atony.

Step 2: Dosing can be repeated at 15 minute intervals, but the protocol caps the number of injections at eight to limit prostaglandin side effects.

Step 3: Multiply the unit dose by the cap: $250 \mu\text{g} \times 8 = 2000 \mu\text{g} = 2 \text{ mg}$. This is the ceiling total dose.

Step 4: So the maximum dose is 2 mg, and asthma is the key contraindication to remember alongside it.

2 mg

Quick Tip: 0.25 mg per dose, up to 8 doses gives the cumulative maximum.

227. All are true about skin except:

- (A) Both dermis and epidermis are derived from ectoderm
- (B) Skin accounts for a total of 15% of body weight
- (C) Most of the cells in skin are keratinocytes derived from ectoderm
- (D) Dermis is made up of type 1 and type 3 collagen in a 3:2 ratio

Correct Answer: (A) Both dermis and epidermis are derived from ectoderm

SOLUTION:

Step 1: The question asks for the single incorrect fact, so scan each option for an error.

Step 2: Embryology is the trap. Only the epidermis arises from surface ectoderm; the dermis develops from mesoderm (and neural crest in the head region). Any option claiming the dermis is ectodermal is wrong.

Step 3: Checking the rest: the skin really is about 15% of body weight, keratinocytes really are the majority epidermal cell line of ectodermal origin, and dermal collagen really is predominantly types 1 and 3. All true.

Step 4: The only false statement is that both dermis and epidermis come from ectoderm, so that is the answer.

Both dermis and epidermis from ectoderm (false)

Quick Tip: Epidermis is ectoderm but dermis is mesoderm.

228. The anaesthetic gas with maximum respiratory irritation is:

- (A) Halothane
- (B) Enflurane
- (C) Desflurane
- (D) Sevoflurane

Correct Answer: (C) Desflurane

SOLUTION:

Step 1: Rank the volatiles by smell and airway tolerance. Pungency drives coughing, breath holding and laryngospasm on induction.

Step 2: Sevoflurane and halothane are sweet and well tolerated, which is exactly why sevoflurane is used to gas-induce children.

Step 3: At the other extreme, desflurane has a sharp, ethereal pungency and the highest airway irritancy of the group, making it unsuitable for inhalational induction.

Step 4: Maximum respiratory irritation therefore points to desflurane.

Desflurane

Quick Tip: Sevoflurane is used for gas induction because it is non-pungent; the opposite extreme is your answer.

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229. Intravenous administration of which anaesthetic drug is most painful among the following?

- (A) Methohexital
- (B) Ketamine
- (C) Propofol
- (D) Etomidate

Correct Answer: (C) Propofol

SOLUTION:

Step 1: Tie the side effect to the vehicle. The injection pain of an induction agent is largely a property of what it is dissolved in.

Step 2: Propofol is the lipid-emulsion agent (soybean oil, egg lecithin, glycerol), and this emulsion is the classic cause of a burning sensation at the injection site.

Step 3: That is why anaesthetists routinely add or pre-inject lidocaine and choose a larger antecubital vein, and why thrombophlebitis is an occasional sequela.

Step 4: Among the options, propofol is the agent best known for painful IV administration.

Propofol

Quick Tip: Think of the lipid-emulsion agent that needs lidocaine to reduce injection burn.

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230. Which of the following is not cardiodepressive?

- (A) Propofol
- (B) Thiopentone
- (C) Ketamine
- (D) Etomidate

Correct Answer: (D) Etomidate

SOLUTION:

Step 1: Look for the agent prized in shocked or cardiac patients because it does not drop the blood pressure.

Step 2: That agent is etomidate. After an induction dose, heart rate barely changes, blood pressure and cardiac output fall only slightly, and coronary perfusion is well maintained.

Step 3: By contrast, thiopentone and propofol depress the myocardium and cause hypotension, and ketamine, despite its sympathomimetic surface effect, is directly cardiodepressant on the myocardium.

Step 4: The cardiovascularly stable, non-depressant choice is etomidate.

Etomidate

Quick Tip: The induction agent of choice in haemodynamically unstable cardiac patients.

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231. Which of the following is the most common method used to know the depth of anaesthesia?

- (A) BIS (Bispectral index)
- (B) Oesophageal contractility
- (C) Depressed responses
- (D) Hypotension

Correct Answer: (A) BIS (Bispectral index)

SOLUTION:

Step 1: Identify the dedicated, processed-EEG depth monitor that is in routine clinical use.

Step 2: That is the bispectral index. It takes raw EEG data and converts it into a single number that reflects how anaesthetised the brain is.

Step 3: Read the scale to anchor the value: 100 means wide awake, 45 to 60 means an adequate surgical plane, and 0 means an electrically silent cortex.

Step 4: The remaining options are crude or indirect surrogates, so the standard and most widely used method is BIS.

BIS (Bispectral index)

Quick Tip: A processed-EEG number where 45 to 60 is the surgical plane and 100 is awake.

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232. MRP2 (multidrug resistance protein 2) is associated with which of the following conditions?

- (A) Rotor syndrome
- (B) Dubin-Johnson syndrome
- (C) Crigler-Najjar syndrome
- (D) Gilbert syndrome

Correct Answer: (B) Dubin-Johnson syndrome

SOLUTION:

Step 1: Start from the protein named in the stem. ABCC2, the transporter also known as MRP2 or cMOAT, lives on the canalicular (bile-facing) membrane of the liver cell and is the main exporter of conjugated bilirubin into bile.

Step 2: Ask which hereditary jaundice arises when this exporter fails. When ABCC2 is mutated, conjugated bilirubin builds up inside the hepatocyte and spills back into blood, giving a direct hyperbilirubinemia and a melanin-like black liver on gross examination. That clinical picture defines Dubin-Johnson syndrome.

Step 3: Eliminate by mechanism. Rotor syndrome involves impaired hepatic storage rather than the canalicular pump. Crigler-Najjar and Gilbert syndromes both stem from reduced bilirubin conjugation through UGT1A1, so their problem sits upstream of MRP2 and produces indirect bilirubin.

Step 4: Only one option matches an MRP2/ABCC2 transport defect.

Dubin-Johnson syndrome

Quick Tip: MRP2 equals ABCC2 equals cMOAT, the canalicular conjugated-bilirubin exporter.

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233. Which of the following elements forms the basis of a water-soluble radiographic contrast agent?

- (A) Barium
- (B) Iodine
- (C) Bromium
- (D) Calcium

Correct Answer: (B) Iodine

SOLUTION:

Step 1: Recall what makes a contrast medium dissolve safely in body fluids.

Iodinated compounds can be synthesised as soluble salts, letting them be injected into vessels or swallowed without leaving a residue.

Step 2: Contrast that is water soluble is the agent of choice whenever a barium leak would be dangerous, such as a suspected gut perforation, and for all vascular and urinary tract studies.

Step 3: Rule out the rest. Barium sulphate is a heavy insoluble powder given as a suspension, not a solution. Bromine and calcium do not serve as contrast media at all.

Step 4: The single element that yields a water-soluble contrast is iodine.

Iodine

Quick Tip: Soluble for IV and vascular use means iodinated, not barium.

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234. A solitary lytic bone lesion can be seen in which of the following conditions?

- (A) Atherosclerosis
- (B) Multiple myeloma
- (C) Mitral stenosis
- (D) Osteoblast

Correct Answer: (B) Multiple myeloma

SOLUTION:

Step 1: Frame the question around what erodes bone. A lytic lesion means radiolucent bone destruction, and the standard list of causes is summarised by the FOG MACHINES mnemonic, in which the M stands for myeloma and metastasis.

Step 2: Scan the options against that list. Only multiple myeloma belongs to it, and its localized variant, the solitary plasmacytoma, is a textbook single punched-out lytic defect.

Step 3: Discard the irrelevant choices. Atherosclerosis and mitral stenosis are vascular and valvular disorders with no role in bone lysis, while an osteoblast is a cell that lays down bone, the opposite of a lytic process.

Step 4: The condition that produces a solitary lytic lesion is myeloma.

Multiple myeloma

Quick Tip: Think FOG MACHINES; the M is myeloma, the classic lytic lesion.

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235. Which of the following statements is NOT true regarding somnambulism (sleep walking)?

- (A) Sleep walking
- (B) Patient consciousness is preserved
- (C) Disorder of sleep arousal
- (D) Low level motor skill or function is present

Correct Answer: (D) Low level motor skill or function is present

SOLUTION:

Step 1: Identify the disorder first. Sleep walking, or somnambulism, is a non-REM disorder of arousal that emerges from deep slow-wave sleep, and amnesia for the event is typical.

Step 2: Pin down the behaviour. The hallmark is that the patient carries out elaborate, coordinated actions such as walking, dressing, rearranging objects or

driving, which require high-level motor function, not a reduced or minimal one.

Step 3: A negatively worded stem asks for the one wrong claim. Saying that only low level motor skill is present contradicts the complex automatisms that define the condition, so that is the false statement.

Step 4: Confirm the rest fit, and select the inaccurate option.

Low level motor skill or function is present

Quick Tip: Sleepwalkers perform complex coordinated acts, not low-level movements.

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236. The Confusion Assessment Method (CAM) scale is used for the assessment of which of the following?

- (A) Schizophrenia
- (B) Delirium
- (C) Dementia
- (D) Depression

Correct Answer: (B) Delirium

SOLUTION:

Step 1: Decode the tool by its purpose. CAM is built around acute onset, fluctuating course, inattention, disorganized thinking and a changed level of consciousness, the exact hallmarks of an acute confusional state.

Step 2: That feature set maps onto delirium, an acute and reversible disturbance of attention and awareness, not a chronic cognitive decline.

Step 3: Separate it from the other choices by their own scales. Dementia uses MMSE or MoCA, depression uses PHQ-9 or Hamilton, and schizophrenia uses PANSS, so none of these is what CAM measures.

Step 4: The condition CAM is designed to identify is delirium.

Delirium

Quick Tip: CAM checks acute onset, inattention and fluctuating consciousness: that is delirium.

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237. Which of the following is a poor prognostic factor in obsessive-compulsive disorder (OCD)?

- (A) Magical thinking
- (B) Dirt contamination
- (C) Pathological doubt
- (D) Hoarding

Correct Answer: (D) Hoarding

SOLUTION:

Step 1: Frame the task as separating symptoms that worsen outcome from those that improve it. The established list of bad prognostic indicators in OCD includes early onset, giving in to compulsions, bizarre or hoarding compulsions, need for symmetry, comorbid depression and poor insight.

Step 2: Match the options to that list. Hoarding sits squarely among the poor prognostic features because it is treatment resistant and runs a chronic, disabling course.

Step 3: Weigh the alternatives. Cleaning driven by contamination fear tends to respond well to exposure and SSRIs, signalling a better outcome, while pathological doubt and magical thinking are typical contents of obsessions rather than validated prognostic markers.

Step 4: The choice that genuinely predicts a poor prognosis is hoarding, so the contamination-based key is corrected.

Hoarding

Quick Tip: Hoarding and need for symmetry predict the worst OCD outcomes.

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238. Which forensic test is based on the principle that a suspect who has witnessed an event reacts in a certain measurable physiological way when confronted with stimuli related to it?

- (A) Narcoanalysis
- (B) Brain mapping
- (C) Truth serum testing
- (D) Polygraph

Correct Answer: (D) Polygraph

SOLUTION:

Step 1: Read the principle in the stem: it measures how the body reacts when a person who witnessed an event is questioned about it. That points to recording autonomic responses.

Step 2: The polygraph is the instrument that continuously tracks blood pressure, heart rate, breathing and skin conductance, and interprets deviations as signs of stress, deception or recognition.

Step 3: Exclude the others by mechanism. Narcoanalysis and truth serum rely on drug-induced disinhibition so the subject talks, and brain mapping captures evoked EEG potentials, neither of which is the autonomic-reaction test described.

Step 4: The match is the polygraph.

Polygraph

Quick Tip: Records BP, pulse, respiration and skin response to questions: the lie detector.

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239. Intense depression and misery without any cause is?

- (A) Melancholia
- (B) Major depressive disorder
- (C) Mania
- (D) Schizophrenia

Correct Answer: (A) Melancholia

SOLUTION:

Step 1: Read the descriptor carefully - we need the named term for deep, causeless gloom and wretchedness, not a full diagnostic label.

Step 2: Melancholia is the historical and descriptive word for this exact picture: a heavy, endogenous sadness and misery that appears even when life circumstances do not explain it.

Step 3: Why the others miss: **Major depressive disorder** is a syndromic diagnosis requiring a symptom checklist over time; the question wants the descriptive mood term. Mania is heightened, euphoric or irritable mood - the reverse direction. Schizophrenia centres on psychosis, thought disorder, and hallucinations rather than mood lowering.

Step 4: So the phrase points squarely at melancholia.

Melancholia

Quick Tip: Think of the classical term for deep, endogenous, causeless gloom.

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240. Which of the following is not true regarding delusional disorder?

- (A) Held with absolute conviction
- (B) Usually false
- (C) Not amenable to reasoning
- (D) Occurs at early age

Correct Answer: (D) Occurs at early age

SOLUTION:

Step 1: The question asks for the false statement, so confirm the three classic delusion characteristics and find the outlier.

Step 2: Genuine features of a delusion: it is held with unshakeable, absolute conviction; its content is usually false; and it cannot be corrected by logic or evidence (not amenable to reasoning). All three are correct.

Step 3: The remaining claim concerns onset age. Delusional disorder is a disorder of mid-life, with a mean onset near **40** years and a wide range from about **18** to **90** years - it does not arise at an early age.

Step 4: Because it contributes only **1** to **2%** of psychiatric inpatient admissions and presents late, the early-age statement is the incorrect one.

Occurs at early age

Quick Tip: Three options describe a true delusion; the odd one out is about onset age.

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241.



Identify the condition shown in the image below.

- (A) Intertrigo
- (B) Heat rash
- (C) Eczema
- (D) Impetigo

Correct Answer: (A) Intertrigo

SOLUTION:

Step 1: Note the location in the picture - a red, irritated rash sitting within a skin fold at the back of an infant's neck.

Step 2: Rashes confined to apposed, sweaty skin folds that rub together are the hallmark of intertrigo. Trapped warmth and moisture macerate the skin and invite bacterial or fungal overgrowth.

Step 3: Babies are particularly prone because of their deep neck and groin creases; management is simple - barrier cream plus keeping the crease clean and dry.

Step 4: Distractors fail because miliaria (heat rash) gives diffuse trunk vesicles from blocked sweat glands, eczema is a chronic pruritic dermatitis not limited to folds, and impetigo presents with honey-crusted lesions of bacterial origin.

Intertrigo

Quick Tip: A rash limited to a warm, moist, rubbing skin fold in a baby.

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242.



Identify the infection from the chest X-ray of a patient with low-grade fever?

- (A) ILD
- (B) Bronchopneumonia
- (C) Miliary TB
- (D) Consolidation

Correct Answer: (C) Miliary TB

SOLUTION:

Step 1: Focus on the radiographic texture - countless tiny, equal-sized nodules of roughly **1 to 2 mm** scattered uniformly across both lungs in a febrile patient.

Step 2: This fine, symmetric miliary shower arises when tubercle bacilli spread through the bloodstream, seeding both lungs simultaneously, and can complicate either primary or post-primary tuberculosis.

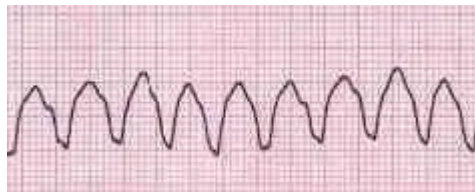
Step 3: The film may look clear at first, then the discrete nodules emerge; appropriate anti-TB therapy leads to slow clearance.

Step 4: Ruling out alternatives: ILD shows reticulonodular or honeycomb fibrosis, bronchopneumonia shows patchy asymmetric infiltrates, and lobar consolidation shows a dense segmental opacity with air bronchograms - none match the uniform miliary pattern.

Quick Tip: Uniform 1-2 mm millet-seed nodules across both lungs with low-grade fever.

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243.



Identify the condition given in the image?

- (A) Atrial fibrillation
- (B) Atrial flutter
- (C) Ventricular tachycardia
- (D) SVT

Correct Answer: (C) Ventricular tachycardia

SOLUTION:

Step 1: Examine width and regularity - the tracing is a regular tachycardia with broad, identical-looking QRS complexes.

Step 2: Uniform wide complexes that repeat at a steady rate indicate a single ventricular focus driving the rhythm, the definition of monomorphic ventricular tachycardia. Fusion and capture beats, when present, further confirm a ventricular origin.

Step 3: Eliminating the rest: atrial fibrillation is irregularly irregular with narrow QRS, atrial flutter carries characteristic sawtooth waves near **300/min**, and ordinary SVT is a narrow-complex regular tachycardia.

Step 4: A regular, broad, monomorphic-QRS tachycardia leaves only one answer.

Ventricular tachycardia

Quick Tip: Regular, broad, uniform QRS complexes from a single ventricular focus.

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244.



A patient presented with history of diplopia and restricted eye movements. A clinical image and CT image is shown below. What will be the diagnosis?

- (A) Le Fort fracture
- (B) Fracture maxilla
- (C) Fracture zygomatic
- (D) Blow out fracture

Correct Answer: (D) Blow out fracture

SOLUTION:

Step 1: Link the clinical clues - blunt periorbital trauma producing double vision and a globe that cannot move fully.

Step 2: When an object wider than the eye socket strikes the orbit, pressure

transmits to the weakest point and fractures the orbital floor or medial wall; this is a blowout fracture.

Step 3: The inferior rectus muscle and orbital fat herniate into the maxillary sinus and become trapped, mechanically limiting eye movement (especially elevation) and causing the diplopia seen in this patient. CT shows the floor defect and the tear-drop soft tissue herniation.

Step 4: Other options do not fit: **Le Fort** injuries are higher midface fracture patterns, while isolated maxillary or zygomatic fractures lack the muscle-entrapment diplopia. The picture is diagnostic of a blowout fracture.

Blow out fracture

Quick Tip: Diplopia plus restricted gaze after blunt eye trauma equals orbital floor injury.

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245.



Identify the radiological procedure shown below?

- (A) Barium meal follow through
- (B) Barium enema
- (C) Enteroclysis
- (D) Proctography

Correct Answer: (A) Barium meal follow through

SOLUTION:

Step 1: Trace the contrast path on the study - it enters orally and flows antegrade from stomach and duodenum into the jejunal and ileal loops.

Step 2: This antegrade, single-contrast, swallowed-barium technique that tracks the column down into the small bowel is the barium meal follow-through.

Step 3: It commonly extends an upper GI fluoroscopy and helps assess strictures, obstruction, diverticula, masses, tethering, and motility disorders of the small intestine.

Step 4: Distractors differ by route or target: a barium enema is given per rectum to study the colon, enteroclysis infuses contrast via a naso-jejunal tube directly into the small bowel, and proctography evaluates rectal evacuation. The oral antegrade study shown is the barium meal follow-through.

Barium meal follow through

Quick Tip: Oral barium tracked antegrade from stomach through the small bowel.

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246.



Identify the condition shown in the CT image.

- (A) Lacunar infarct
- (B) Embolic infarct
- (C) Thrombotic infarct
- (D) Intracerebral hemorrhage

Correct Answer: (A) Lacunar infarct

SOLUTION:

Step 1: A tiny, deep, circular hypodense focus on CT points to disease of one small penetrating vessel rather than a major artery, which is the signature of a lacune.

Step 2: These strokes arise when a single perforator is blocked, so the dead tissue is confined to a small deep region near the basal ganglia, internal capsule, thalamus or pons.

Step 3: Over time the affected tissue contracts into a fluid-filled cavity under 1.5 cm and is bordered by gliosis that is bright on FLAIR, distinguishing it from a normal perivascular space.

Step 4: Bleeds look bright (hyperdense) on plain CT, ruling out option d, and embolic or thrombotic infarcts are territorial and far larger, ruling out b and c. For the earliest detection MRI-DWI is superior, showing restricted diffusion.

Lacunar infarct

Quick Tip: Small, deep, rounded sub-1.5 cm cavity from a single perforator block.

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247.



Identify the condition in the below image.

- (A) SLE
- (B) Polymorphous light eruption
- (C) Discoid lupus
- (D) Skin tuberculosis

Correct Answer: (A) SLE

SOLUTION:

Step 1: A symmetric red rash hugging both cheeks and spanning the nasal bridge in a butterfly shape is the textbook face of systemic lupus.

Step 2: This eruption is photosensitive and appears in the majority of lupus patients, often alongside mucosal ulcers and patchy or diffuse hair loss in roughly half of cases.

Step 3: The discoid form is different: it produces coin-shaped scaly plaques that scar and pigment, so it would not paint a smooth malar band across the face.

Step 4: A purely sun-triggered itchy bumpy rash suggests polymorphous light

eruption, while chronic granulomatous skin nodules suggest cutaneous tuberculosis, so neither fits the picture.

SLE

Quick Tip: Photosensitive butterfly malar rash over cheeks and nasal bridge.

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248.



A child with history of fever, photosensitivity and a rash sparing the nasolabial fold presents to OP. Identify the condition.

- (A) *Sarcoptes scabiei*
- (B) Dermatitis herpetiformis
- (C) Xerotic dermatitis
- (D) Erythema multiforme

Correct Answer: (A) *Sarcoptes scabiei*

SOLUTION:

Step 1: Severe itching, especially worse at night, together with the mite seen in the image, identifies infestation by *Sarcoptes scabiei*.

Step 2: The parasite spreads through close skin contact, and the egg-laying female tunnels into the outer skin layer; the mite plus its debris and eggs drive

the allergic itch.

Step 3: Lesions cluster in warm sheltered zones such as finger webs, wrists, axillae and genital folds, and may even hide beneath rings or watch straps.

Step 4: The alternatives have distinct patterns - extensor vesicles for dermatitis herpetiformis, dry scaling for xerotic eczema, and iris-shaped targets for erythema multiforme - so they are excluded.

Sarcoptes scabiei

Quick Tip: Intense itch with finger-web burrows from a microscopic mite.

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249.



A patient presents with pruritus of the interdigital spaces of the left hand as shown in the image. Identify the condition.

- (A) Atopic dermatitis
- (B) SLE
- (C) Erythema
- (D) TEN

Correct Answer: (A) Atopic dermatitis

SOLUTION:

Step 1: Chronic, relapsing, intensely itchy, dry and inflamed skin in a young child is the hallmark of atopic eczema.

Step 2: The condition typically starts very early in life and waxes and wanes over years, with flexural involvement and lichenification from repeated scratching.

Step 3: The decisive hint is the atopic background - an asthmatic mother - because eczema runs with the atopic triad of eczema, asthma and allergic rhinitis.

Step 4: Lupus would be photosensitive and systemic, simple erythema is just redness without chronicity, and toxic epidermal necrolysis is an emergency with sheet-like detachment, so all are ruled out.

Atopic dermatitis

Quick Tip: Chronic itchy eczema in a child with a strong atopic family history.

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250.



Identify the condition shown in the image.

- (A) Sebaceous cyst
- (B) Alopecia areata
- (C) Trichotillomania
- (D) Tinea capitis

Correct Answer: (B) Alopecia areata

SOLUTION:

Step 1: A sharply outlined, smooth, hairless patch on otherwise normal scalp without scarring is the picture of alopecia areata.

Step 2: This is an immune-mediated attack on the hair bulb that spares the follicle, so the loss is reversible and can extend from single patches to total scalp or body hair loss.

Step 3: Tapering exclamation-mark hairs at the edge of the bald patch are a useful diagnostic clue and confirm the active autoimmune process.

Step 4: Pulling disorder leaves irregular broken stubble, fungal scalp disease adds scale and inflammation, and a sebaceous cyst is a lump rather than hair loss, so each alternative is excluded.

Alopecia areata

Quick Tip: Smooth non-scarring bald patch with preserved follicles - autoimmune.

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251.



Identify the condition in the image.

- (A) Leukoderma
- (B) Piebaldism
- (C) Vitiligo
- (D) DLE

Correct Answer: (A) Leukoderma

SOLUTION:

Step 1: Well-demarcated chalky-white patches caused by loss of melanin define leukoderma, literally white (leuko) skin (derma).

Step 2: The depigmented areas can enlarge and coalesce, and in advanced disease they may involve the face, scalp and genital skin extensively.

Step 3: Leukoderma is the general term for melanin loss, with vitiligo being one autoimmune subtype, so the over-arching diagnosis matching the picture is leukoderma.

Step 4: Piebaldism is present from birth with a white forelock, while discoid lupus scars and scales rather than simply depigmenting, so both are set aside.

Leukoderma

Quick Tip: Acquired white depigmented patches from melanin loss.

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252.



Which of the following is true regarding the condition depicted in the image?

- (A) May be an indication of skin malignancy
- (B) Hypopigmentation
- (C) May be associated with insulin resistant diabetes mellitus
- (D) Commonly occurs in lean and thin

Correct Answer: (C) May be associated with insulin resistant diabetes mellitus

SOLUTION:

Step 1: Dark, thickened, velvety skin in body folds, classically the axilla and neck, is the hallmark of acanthosis nigricans.

Step 2: Its strongest clinical association is with insulin resistance and obesity, so among the choices the link to insulin-resistant diabetes mellitus is the accurate one.

Step 3: The microscopic basis is hyperplasia of the epidermis with a thickened Malpighian layer, which produces the rough velvety surface seen clinically.

Step 4: It is a hyperpigmented (not hypopigmented) lesion seen in obese rather than lean patients, and when paraneoplastic it points to internal GIT malignancy, not a skin cancer, eliminating the other options.

May be associated with insulin resistant diabetes mellitus

Quick Tip: Velvety dark axillary thickening tied to obesity and insulin resistance.



253.



The causative organism for the condition depicted in the image is?

- (A) Staphylococci
- (B) Candidal infection
- (C) Streptococcus
- (D) Actinomycetes

Correct Answer: (A) Staphylococci

SOLUTION:

Step 1: Read the lesion morphology first. Tense, thin-walled blisters that collapse into a clear, lacquer-like crust point straight to the bullous subtype of impetigo rather than the honey-crusted classic form.

Step 2: The bulla in this disease is produced by an exotoxin. The epidermolytic (exfoliative) toxin cleaves desmoglein-1 in the superficial epidermis, lifting the roof and creating a flaccid blister. This toxin is a product of *S. aureus*.

Step 3: Epidemiologically, impetigo is the leading paediatric skin infection and spreads easily by contact. The clue separating bullous from non-bullous disease is the distinctive varnish-like crust after rupture, a hallmark of the staphylococcal lesion.

Step 4: Eliminate the rest: *Streptococcus* underlies the crusted non-bullous form, while *Candida* and *Actinomyces* never generate this toxin-driven blistering. Hence the organism shown is staphylococcal.

Quick Tip: Thin-walled bullae that rupture to a varnish-like crust signal toxin-mediated bullous impetigo.

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254.



Identify the condition as shown.

- (A) Brodie abscess
- (B) Osteoid osteoma
- (C) Intracortical hemangioma
- (D) Chondromyxoid fibroma

Correct Answer: (A) Brodie abscess

SOLUTION:

Step 1: Frame the picture as a chronic infective focus inside bone. An ovoid lucency aligned with the bone's long axis, ringed by dense sclerosis that blends into normal cortex, is the signature of an intraosseous abscess from subacute osteomyelitis.

Step 2: The patient profile reinforces it. These lesions favour skeletally immature children, more often boys, and sit in the metaphysis of long tubular bones, with the proximal and distal tibia leading the list.

Step 3: Hunt for the giveaway sign. A lucent, winding channel tracking toward the open growth plate is pathognomonic, often accompanied by periosteal reaction and adjacent soft-tissue swelling. Together these confirm a Brodie abscess.

Step 4: Rule out mimics: an osteoid osteoma carries a tiny radiolucent nidus and classic NSAID-responsive night pain; a chondromyxoid fibroma is an eccentric metaphyseal lytic lesion of a different texture; an intracortical hemangioma is rarer with a striated cortical pattern. None match the abscess channel here.

Brodie abscess

Quick Tip: A metaphyseal lytic lesion with a sclerotic rim and a channel toward the growth plate is a subacute osteomyelitis abscess.

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255.



A 14-year-old child is a naive rheumatoid arthritis patient as shown in the image. What should be the correct treatment of the given condition?

- (A) DMARD with short course of steroids
- (B) Only NSAIDs
- (C) DMARD after initial 3 months of NSAIDs
- (D) Monotherapy with TNF drugs

Correct Answer: (A) DMARD with short course of steroids

SOLUTION:

Step 1: Recognise the diagnosis from the symmetrical, deforming small-joint arthritis shown: rheumatoid arthritis, an autoimmune synovitis that erodes joints if left unchecked.

Step 2: The governing principle in modern rheumatology is the window of opportunity. Starting a disease-modifying agent as early as possible in a never-treated patient prevents irreversible cartilage and bone loss, so a **DMARD** forms the backbone of therapy.

Step 3: Because DMARDs act slowly, a brief glucocorticoid course is layered on to suppress inflammation and pain during the lag period. This combination of an

early DMARD plus a short steroid bridge is the recommended naive-patient strategy.

Step 4: Contrast the wrong paths: relying on NSAIDs alone gives only symptomatic relief while joints continue to erode; postponing the DMARD for three months wastes the early window; and reaching straight for TNF-blocker monotherapy is reserved for DMARD failure, not initial care.

DMARD with short course of steroids

Quick Tip: Treatment-naive RA needs an early DMARD with a short steroid bridge, not NSAIDs alone or delayed therapy.

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256.



In a 34-week gestation the weight of the baby was 3 kg. The child shows the following features, which may indicate an associated condition.

- (A) Anemia
- (B) Diabetes
- (C) APH
- (D) None

Correct Answer: (B) Diabetes

SOLUTION:

Step 1: Compare the weight against the gestational age. At 34 weeks a 3 kg baby plots well above the 90th centile, marking the infant as oversized for dates - the hallmark of macrosomia.

Step 2: Trace the mechanism. Maternal hyperglycaemia floods the fetus with glucose; the fetal pancreas responds with excess insulin, an anabolic growth factor that lays down extra fat and glycogen. The maternal driver of this picture is diabetes, classically gestational diabetes.

Step 3: Anchor the thresholds: above the 90th centile or two standard deviations defines macrosomia, **> 4500 g** by ACOG and **> 4000 g** in Indian practice. The accelerated growth shown fits this definition.

Step 4: Discard the distractors that shrink rather than enlarge the fetus: maternal anaemia and antepartum haemorrhage both impair placental oxygen delivery and tend toward growth restriction, so neither explains an overgrown baby, and 'None' cannot apply.

Diabetes

Quick Tip: A large-for-dates, overgrown fetus points to maternal diabetes-driven macrosomia.

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257.



A 30-year-old woman with complaints of dysmenorrhoea, dyspareunia and chronic pelvic pain undergoes hysterectomy. From the cut section of the hysterectomy specimen below, identify the condition.

- (A) Adenomyosis
- (B) Fibroids
- (C) Leiomyoma
- (D) Endometriosis

Correct Answer: (A) Adenomyosis

SOLUTION:

Step 1: Orient the slice: the endometrial lining sits at the top and the serosa at the bottom. The key finding is islands of lining-type tissue burrowing down into the muscular wall between those two surfaces.

Step 2: Tissue from the womb lining sitting WITHIN the myometrium is the definition of adenomyosis. The patient's painful periods, painful intercourse and persistent pelvic pain are the classic clinical correlates.

Step 3: Adenomyosis comes in diffuse and focal forms, and because medical therapy is often inadequate, hysterectomy is the ultimate cure - explaining why this whole-uterus specimen exists.

Step 4: Separate it from the look-alikes: a leiomyoma (the same lesion as a 'fibroid') is a sharply demarcated whorled muscle nodule, not glandular tissue diffusing through muscle; endometriosis places identical tissue OUTSIDE the uterus altogether. Neither matches intramyometrial glands.

Adenomyosis

Quick Tip: Endometrial tissue burrowing into the myometrium of a removed uterus is adenomyosis, not endometriosis.



258.



Identify the type of placenta praevia as shown in the picture below.

- (A) I
- (B) II
- (C) III
- (D) IV

Correct Answer: (B) II

SOLUTION:

Step 1: Apply the four-grade classification of placenta praevia, which is built entirely on the placenta's distance from the internal cervical os. Map the figure onto that scale.

Step 2: Look at where the placental margin lands. Here it just touches the rim of the internal os without spilling over it. That marginal relationship is the defining feature of grade II praevia.

Step 3: Walk the spectrum for contrast: grade I lies low but clear of the os, grade III partially covers the os, and grade IV is a complete central praevia draping fully across it. The image fits none of these extremes.

Step 4: Since the lower placental edge reaches but never overlaps the os, the lesion is a marginal, type II placenta praevia.

Type II

Quick Tip: A placental edge that reaches but does not cover the internal os is marginal (Type II) praevia.

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259.



A female patient presented with recurrent urinary tract infections. Imaging shows the following picture. What can be the most probable diagnosis?

- (A) Duplication of ureter
- (B) Congenital megaureter
- (C) Ureterocele
- (D) Urinary stones

Correct Answer: (C) Ureterocele

SOLUTION:

Step 1: Start with the plain film. No calcific density anywhere along the tract removes a calculus from contention from the outset.

Step 2: Move to the contrast study. The distal left ureter balloons into a bulbous opacity that looks like a snake's head, ringed by a thin lucent rim - the classic cobra-head plus radiolucent-halo combination. This pattern is pathognomonic of a ureterocele protruding into the bladder.

Step 3: Understand the lesion: a ureterocele is a cystic out-pouching of the terminal ureter. It is commoner in females, accompanies ureteric duplication in roughly three-quarters of cases, and the pooled, stagnant urine inside it seeds repeated infections - matching this patient's recurrent UTIs.

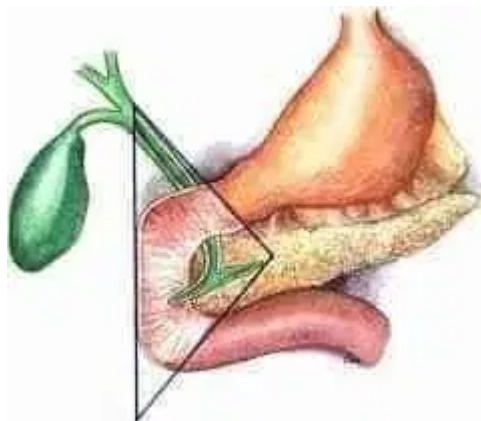
Step 4: Exclude the rest: simple ureteric duplication lacks the terminal sac, a congenital megaureter widens the ureter along its length rather than forming a discrete head, and stones are already ruled out by the clean plain film.

Ureterocele

Quick Tip: A cobra-head sac with a radiolucent halo at the distal ureter and recurrent UTIs means ureterocele.

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260.



Identify the triangle marked in the image below.

- (A) Koch's triangle
- (B) Gastrinoma triangle
- (C) Hesselbach's triangle
- (D) Sherren's triangle

Correct Answer: (B) Gastrinoma triangle

SOLUTION:

Step 1: The labelled region corresponds to Passaro's triangle, the surgical landmark that contains roughly 80-90% of gastrinomas seen in Zollinger-Ellison syndrome.

Step 2: Memorise the three corners as biliary, duodenal and pancreatic points: the cystic-common bile duct confluence above, the D2-D3 duodenal junction below, and the pancreatic neck-body junction medially. Linking these three corners outlines the triangle in the picture.

Step 3: The other options describe unrelated anatomy. Koch's is a cardiac conduction landmark, Hesselbach's is an abdominal wall hernia landmark, and Sherren's is a clinical appendicitis sign. Only the hepato-pancreato-biliary corners define the structure asked about.

Gastrinoma triangle

Quick Tip: Bile duct confluence, D2-D3 junction and pancreatic neck-body junction outline where gastrinomas live.

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261.



Identify the surgical blade shown in the image.

- (A) Blade no. 15
- (B) Blade no. 10
- (C) Blade no. 11
- (D) Blade no. 12

Correct Answer: (C) Blade no. 11

SOLUTION:

Step 1: A scalpel blade with a long straight edge ending in a sharp spear-like tip is the No. 11. The tip, not a curved belly, is the working part.

Step 2: Because it stabs rather than slices, surgeons reach for the No. 11 to make a small entry: laparoscopic trocar sites, central venous and arterial line punctures, aortotomy, and debridement of valvular calcium.

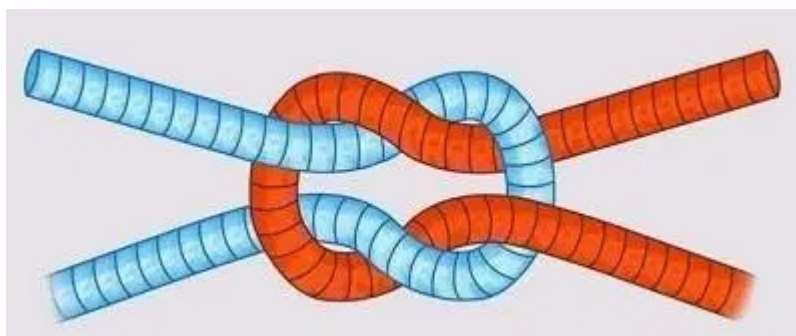
Step 3: Contrast this with curved-belly blades. Nos. 10 and 15 carry a rounded cutting edge for skin incisions of differing length, and No. 12 is a curved sickle blade for tonsil and intra-oral work. Only the straight pointed profile fits the figure.

Blade no. 11

Quick Tip: The sharp straight-tipped stab blade used for trocar and central-line entry.

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262.



Identify the type of knot shown in the image.

- (A) Granny knot
- (B) Surgeon's knot
- (C) Reef knot
- (D) None

Correct Answer: (A) Granny knot

SOLUTION:

Step 1: When the picture shows two half-hitches thrown the same way so the strands cross and the knot looks twisted rather than flat, that is a granny knot.

Step 2: Tying right-over-left twice (instead of alternating) gives this knot.

Because the throws are not reversed, it loosens easily and is not recommended for ligatures.

Step 3: The safer alternatives differ: the reef knot reverses the second throw to lie square and flat, and the surgeon's knot doubles the first throw for extra friction. Neither flat nor double-wrapped, the image is the granny knot.

Granny knot

Quick Tip: Both throws tied the same way - the twisted, slip-prone binding knot.

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263.



Identify the condition shown in the ECG.

- (A) Atrial fibrillation
- (B) Arrhythmia
- (C) Atrial flutter
- (D) Cardiomyopathy

Correct Answer: (C) Atrial flutter

SOLUTION:

Step 1: A regular, fast atrial tracing with a continuous undulating baseline resembling the teeth of a saw points to atrial flutter.

Step 2: The atria fire around 250-350 beats per minute through a macro-reentrant circuit, usually around the tricuspid annulus, producing the F waves; the AV node blocks a fixed ratio of beats so the ventricular rhythm stays regular. Typical (type I) and atypical (type II) forms exist.

Step 3: This separates it from the options offered. Atrial fibrillation has no discrete waves and an irregular ventricular response; arrhythmia is merely a generic label; cardiomyopathy is a myocardial disease without a defining strip. The sawtooth flutter waves seal the diagnosis.

Atrial flutter

Quick Tip: Regular sawtooth F-wave baseline with a regular ventricular rate.



264.



A patient who is a known case of acute pancreatitis develops breathlessness and bilateral basal crepitations on day 4, with the chest radiograph shown below. What is the diagnosis?

- (A) Bilateral pneumonia
- (B) ARDS
- (C) Cardiogenic pulmonary embolism
- (D) Collapse

Correct Answer: (B) ARDS

SOLUTION:

Step 1: In a pancreatitis patient who turns breathless around day 4 with bibasal crackles and a film full of bilateral haziness, think acute respiratory distress syndrome.

Step 2: The mechanism is non-cardiogenic: cytokines released during severe pancreatitis injure the alveolar-capillary barrier, flooding alveoli with protein-rich fluid. The Berlin definition needs acute onset within a week, bilateral opacities not explained by effusion or collapse, hypoxaemia, and oedema not due to heart failure - all satisfied here.

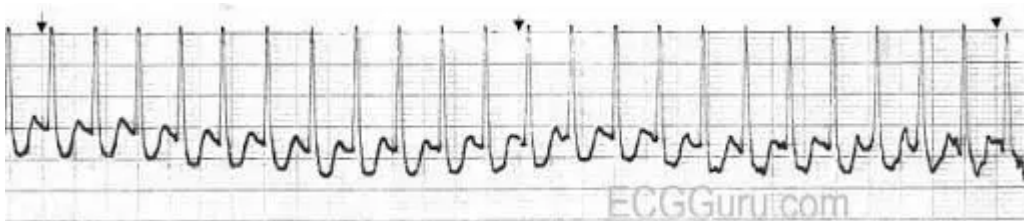
Step 3: The alternatives fail on imaging or physiology. Pneumonia is patchy and infective, embolism rarely paints both lungs white diffusely, and lobar collapse shifts structures toward the dense side rather than producing symmetric infiltrates.

ARDS

Quick Tip: Pancreatitis plus day-4 hypoxia and bilateral diffuse opacities = non-cardiogenic lung injury.

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265.



Identify the image with the diagnosis.

- (A) VT
- (B) PSVT
- (C) AT
- (D) Ventricular fibrillation

Correct Answer: (B) PSVT

SOLUTION:

Step 1: A sudden-onset, regular, narrow-QRS tachycardia coming from above the ventricles is paroxysmal supraventricular tachycardia.

Step 2: A re-entry loop, frequently due to dual AV-nodal pathways or an accessory bypass tract present from birth, keeps electrical signals circling and the ventricles race at a fast steady rate. The paroxysmal label reflects its abrupt start and stop.

Step 3: The other choices have different signatures: VT shows broad QRS complexes from a ventricular focus, VF is an irregular pulseless squiggle, and atrial tachycardia is a focal atrial discharge. The narrow, regular, paroxysmal trace is PSVT.

PSVT

Quick Tip: Abrupt-onset regular narrow-complex tachycardia from above the ventricles.

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266.



A patient comes to the emergency department with severe abdominal pain, pulse 112 per minute and systolic BP 80 mm Hg, with the chest X-ray shown below. What is the next appropriate step for this patient?

- (A) Exploratory laparotomy
- (B) Saline wash of stomach
- (C) Intercostal tube drainage
- (D) None

Correct Answer: (A) Exploratory laparotomy

SOLUTION:

Step 1: Crescents of gas tracking beneath the diaphragm on an erect chest film mean pneumoperitoneum, the radiological signature of a ruptured hollow viscus.

Step 2: Pair that with a rigid painful abdomen and shock numbers (tachycardia of 112 and hypotension of 80 systolic) and you have perforation peritonitis with circulatory compromise demanding surgery, not observation.

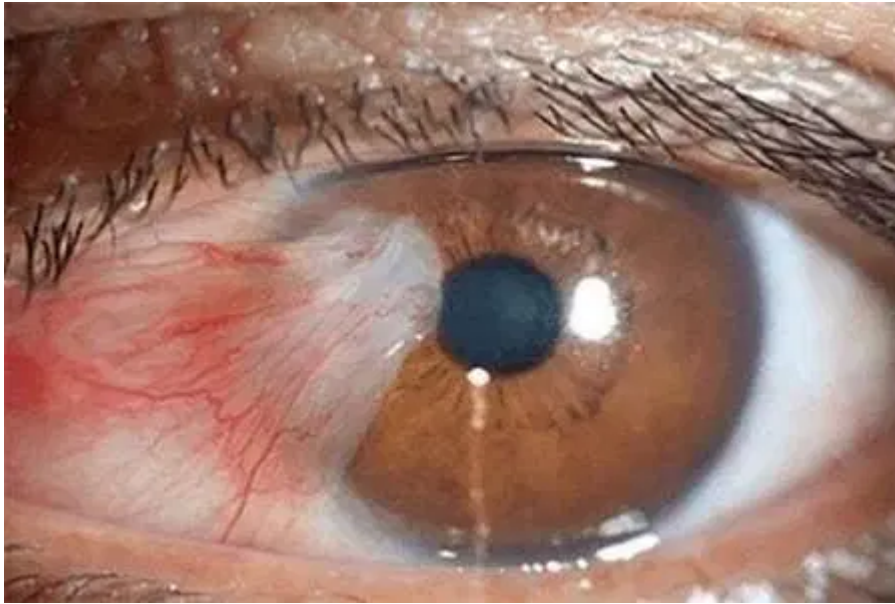
Step 3: After rapid fluid resuscitation the definitive move is emergency exploratory laparotomy to locate and close the leak. A stomach washout cannot fix a hole, a chest drain addresses the pleural space rather than free intraperitoneal gas, and doing nothing would be fatal.

Exploratory laparotomy

Quick Tip: Air under the diaphragm plus shock = perforation; resuscitate and operate.

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267.



True statement about the given condition of the eye except:

- (A) Arise from any part of conjunctiva
- (B) Can cause Astigmatism
- (C) Surgery is treatment of choice
- (D) UV exposure is risk factor

Correct Answer: (A) Arise from any part of conjunctiva

SOLUTION:

Step 1: The clinical picture is a pterygium - a triangular, vascularised fibrovascular growth of bulbar conjunctiva creeping over the cornea, classically in the area of the open palpebral fissure on the nasal limbus.

Step 2: This is a negative-marking ("except") item, so we must isolate the statement that does NOT hold true. A pterygium is confined to the interpalpebral zone; it never originates from random or any part of the conjunctiva. Statement (a) is therefore incorrect about pterygium.

Step 3: Reviewing the remaining choices: corneal flattening from the advancing head produces astigmatism, validating (b); chronic ultraviolet exposure is a well-documented aetiological factor, validating (d); and definitive management when progressive is surgical removal, validating (c).

Step 4: Because the only untrue claim is that the lesion can come from any conjunctival site, that option is selected.

Arise from any part of conjunctiva

Quick Tip: Pterygium is always in the interpalpebral fissure, not just any part of conjunctiva.

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268.



The following test is used to diagnose which ocular condition as shown in the image:

- (A) Strabismus
- (B) Heterophoria
- (C) Both A & B
- (D) None of the above

Correct Answer: (C) Both A & B

SOLUTION:

Step 1: Depicted is the cover/uncover examination used to evaluate the position and balance of the two eyes.

Step 2: When one eye is occluded and the fellow eye shifts to take up fixation, a constant misalignment - a tropia, i.e. strabismus - is being demonstrated.

Step 3: Switching the occluder rapidly between eyes (alternate cover) dissociates fusion; a refixation movement on uncovering signals a latent deviation, the phoria.

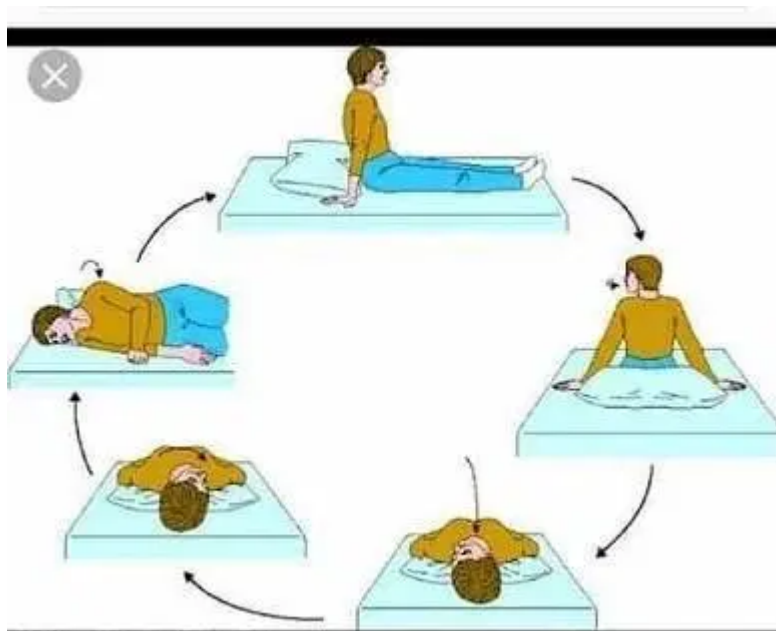
Step 4: Since the same test family identifies manifest strabismus as well as heterophoria, the answer encompasses both options.

Both A and B

Quick Tip: Cover-uncover and alternate cover detect both tropia and phoria.

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269.



Name the manoeuvre shown in the image:

- (A) Brandt Daroff
- (B) Epley
- (C) Foster
- (D) Semont

Correct Answer: (B) Epley

SOLUTION:

Step 1: The illustrated stepwise repositioning of the patient's head and trunk corresponds to the Epley (canalith repositioning) manoeuvre.

Step 2: BPPV results from free-floating otoconia within a semicircular canal; gravity-driven movement of these particles triggers brief rotatory vertigo on positional change.

Step 3: By rolling the otoconia through successive canal segments and out into the utricle, the Epley technique resolves symptoms, typically targeting the posterior canal.

Step 4: Although Semont, Brandt-Daroff and Foster manoeuvres also treat BPPV, the head-turn progression shown is specific to Epley.

Epley

Quick Tip: Canalith repositioning sequence for posterior canal BPPV.

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270.



Identify the condition of the given image:

- (A) Acquired cholesteatoma
- (B) Congenital cholesteatoma
- (C) Rupture of tympanic membrane
- (D) Keratosis obturans

Correct Answer: (D) Keratosis obturans

SOLUTION:

Step 1: The picture is keratosis obturans, an uncommon disorder of the external auditory canal stemming from defective migration of canal skin.

Step 2: Retained keratin packs the canal and erodes (resorbs) surrounding bone, leaving a circumferentially widened canal that exposes the tympanic annulus.

Step 3: The tympanic membrane stays largely intact, helping separate it from a perforation, and the canal bone loss with intact drum separates it from cholesteatoma of the middle ear.

Step 4: Putting these features together, the lesion is keratosis obturans rather than acquired/congenital cholesteatoma or a ruptured drum.

Keratosis obturans

Quick Tip: Widened canal with bone resorption but intact eardrum.

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271.



CT image of left maxilla with a history of allergic rhinitis. Identify the finding:

- (A) Ground glass appearance
- (B) Double densities
- (C) Honey comb
- (D) Onion Peel Appearance

Correct Answer: (B) Double densities

SOLUTION:

Step 1: A patient with allergic rhinitis showing expansile sinus opacification on CT is the classic setting for allergic fungal rhinosinusitis.

Step 2: The inspissated allergic mucin within the sinus is centrally hyperattenuating (heavy metals, calcium, dense secretions) while the

surrounding inflamed mucosa stays hypodense.

Step 3: This combination of a dense centre against a less-dense periphery is described radiologically as a double-density pattern, making (b) the answer.

Step 4: The remaining descriptors belong to other entities (fibrous dysplasia, cystic lung disease, Ewing sarcoma) and do not fit this CT.

Double densities

Quick Tip: Allergic fungal sinusitis - central hyperdense mucin, peripheral hypodense mucosa.

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272.



Identify the instrument:

- (A) Maddox rod
- (B) Maddox wing
- (C) Maddox glass
- (D) Red glasses

Correct Answer: (A) Maddox rod

SOLUTION:

Step 1: The pictured device is the Maddox rod, a handheld bank of red cylindrical lenses.

Step 2: When a patient views a spot light through it, the cylinders convert the

spot into a perpendicular red streak, breaking fusion between the two eyes.

Step 3: By judging the position of the streak relative to the light (diplopic projection), the examiner quantifies horizontal or vertical, latent or manifest deviations at distance and near.

Step 4: Because the Maddox wing measures only near heterophoria and red glasses simply tint vision, the correct identification of this streak-producing instrument is the Maddox rod.

Maddox rod

Quick Tip: Red cylinder lenses turning a light point into a streak.

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273.



Identify the lesion of the vocal cord in the image given below:

- (A) Reinke's edema
- (B) Laryngeal Papilloma
- (C) Malignancy
- (D) Tracheomalacia

Correct Answer: (B) Laryngeal Papilloma

SOLUTION:

Step 1: The cord lesion depicted is a laryngeal papilloma, part of recurrent respiratory papillomatosis, the commonest benign laryngeal neoplasm.

Step 2: Its aetiology is infection with HPV subtypes 6 and 11, and in children it is a leading cause of persistent hoarseness.

Step 3: The exophytic, cauliflower-like papillary growths typically straddle the vocal cord edges and anterior commissure, narrowing the airway and altering the voice.

Step 4: The benign verrucous morphology excludes a smooth Reinke's polyp, an infiltrative malignancy and the dynamic collapse of tracheomalacia, confirming laryngeal papilloma.

Laryngeal Papilloma

Quick Tip: HPV 6 and 11 wart-like growth on vocal cords - benign.

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274.



A patient gives a history of hoarseness in the voice and presents with the clinical condition shown in the image. Identify the lesion.

- (A) Membranous tonsillitis
- (B) Follicular tonsillitis
- (C) Diphtheria
- (D) Aphthous ulcer

Correct Answer: (C) Diphtheria

SOLUTION:

Step 1: A dirty grey, firmly adherent membrane spanning the tonsils and pharynx in a patient with hoarseness points directly to faucial diphtheria.

Step 2: The causative organism is the Gram-positive bacillus

Corynebacterium diphtheriae, whose toxin causes mucosal necrosis. The dead cells, fibrin and bacteria fuse into the classic pseudomembrane that bleeds when peeled.

Step 3: Associated features include a tender swollen neck, airway compromise, low grade fever and malaise. Toxin can later injure the heart and nerves.

Step 4: The other options are excluded because tonsillitis gives removable patchy exudate limited to the tonsils and aphthous ulcers are discrete oral erosions.

Diphtheria

Quick Tip: A thick, firmly adherent grey membrane over the tonsils and throat is the giveaway.

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275.



A patient presented with the following picture of the tympanic membrane. What is the most probable diagnosis (marked with the arrow)?

- (A) Tubercular Otitis Media
- (B) Syphilitic Otitis Media
- (C) Pseudomonas infection
- (D) Fungal Otitis Media

Correct Answer: (A) Tubercular Otitis Media

SOLUTION:

Step 1: Seeing several discrete holes in one tympanic membrane, rather than a solitary perforation, is the key clue and points to tuberculosis of the middle ear.

Step 2: Tubercles seeded in the middle ear mucosa caseate and rupture, so the drum is breached at multiple points. The discharge is classically thin and painless.

Step 3: The organism usually ascends via the eustachian tube; uncommonly it arrives by blood from a lung or lymph node focus or through unpasteurised cow's milk. Children and young adults are most often affected.

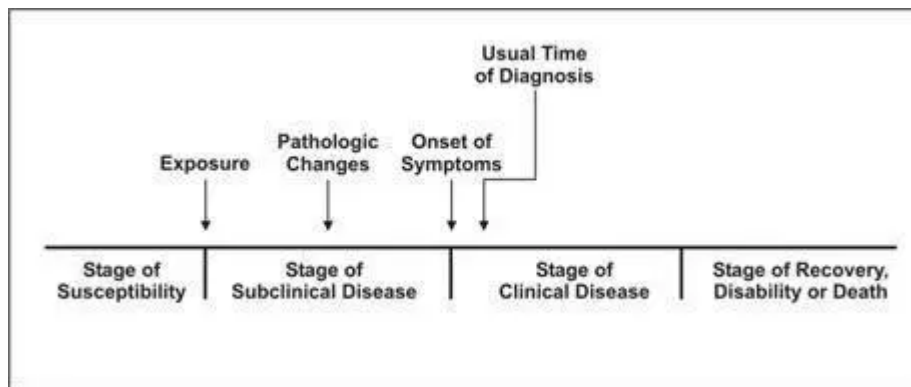
Step 4: Syphilitic, pseudomonas and fungal ear disease do not produce this multiple perforation pattern, so they are ruled out.

Tubercular Otitis Media

Quick Tip: Multiple perforations of the tympanic membrane point to a specific granulomatous infection.

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276.



Which method is used to study the timeline shown in the image?

- (A) Cohort Study
- (B) Cross sectional study
- (C) Randomized Control Trials
- (D) Interventional Studies

Correct Answer: (A) Cohort Study

SOLUTION:

Step 1: The figure traces a disease from before exposure right through to its outcome, which is the definition of the natural history of disease.

Step 2: Capturing this whole untreated sequence requires following people forward in time, exactly what a longitudinal cohort study does.

Step 3: A cross sectional survey only photographs one instant and cannot show progression. Randomized controlled and other interventional designs deliberately alter the course with treatment, so they cannot reveal the untreated timeline.

Step 4: Therefore the appropriate study design to map this timeline is a cohort study.

Cohort Study

Quick Tip: Studying the untreated natural history over time needs a forward-looking longitudinal design.

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277.



A 6 year old boy has fever and chills, cough, rapid breathing, difficulty breathing and chest pain. Culture from a sample shows a Gram-positive organism. Identify the image.

- (A) Streptococcus pneumoniae
- (B) Staphylococcus
- (C) Propionibacterium
- (D) Mycobacterium

Correct Answer: (A) Streptococcus pneumoniae

SOLUTION:

Step 1: A young child with acute fever, tachypnoea, chest pain and a Gram-positive culture is the textbook presentation of community-acquired pneumococcal pneumonia.

Step 2: The slide shows paired, flame or lancet shaped Gram-positive cocci,

characteristic of *Streptococcus pneumoniae*. On blood agar it is alpha-hemolytic, giving green partial haemolysis from H_2O_2 release.

Step 3: That same hydrogen peroxide injures host DNA and alveolar cells, driving the lung infection, and if it reaches the meninges it causes pneumococcal meningitis.

Step 4: Staphylococci form grape-like clusters, Propionibacterium is an anaerobic skin flora, and Mycobacterium stains acid-fast, so all are excluded.

Streptococcus pneumoniae

Quick Tip: Alpha-hemolytic, lancet-shaped Gram-positive diplococci causing childhood community-acquired pneumonia.

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278.



Identify the picture.

- (A) Herpes zoster
- (B) Small pox
- (C) Chicken pox
- (D) Atopic dermatitis

Correct Answer: (A) Herpes zoster

SOLUTION:

Step 1: A unilateral crop of tense vesicles on an erythematous base, hugging one dermatome and stopping at the midline, is diagnostic of herpes zoster.

Step 2: The disorder is a reactivation of latent *varicella zoster virus*. The first encounter with this virus produced chickenpox, after which it lay quiet in dorsal root ganglia.

Step 3: Falling immunity, often with advancing age, lets the virus reawaken and migrate down the sensory nerve to erupt as the painful banded rash seen here.

Step 4: Chickenpox and smallpox scatter lesions over the whole body and atopic dermatitis is a chronic itchy eczema, so none match a single dermatomal vesicular band.

Herpes zoster

Quick Tip: Painful grouped vesicles in a single dermatome from reactivated varicella zoster virus.

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279.



Identify the image.

- (A) Malaria
- (B) Plague
- (C) Japanese encephalitis
- (D) Paragonimus

Correct Answer: (C) Japanese encephalitis

SOLUTION:

Step 1: The picture corresponds to Japanese encephalitis, a viral brain infection produced by the *Japanese encephalitis virus*.

Step 2: Transmission is by Culex mosquitoes, while pigs and wading birds are the amplifying reservoir, sustaining the virus between outbreaks.

Step 3: Because the virus invades the central nervous system, patients develop fever, headache, vomiting, altered consciousness and seizures.

Step 4: Malaria comes from Plasmodium carried by Anopheles, plague from Yersinia pestis through rat fleas, and Paragonimus is a parasitic lung fluke, so all are inconsistent with a Culex-borne encephalitis.

Japanese encephalitis

Quick Tip: A Culex mosquito-borne brain infection with pigs and birds as reservoirs.

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280.

Cause of death*		Time interval between onset and death
1	Report disease or condition directly leading to death on line a	
	Report chain of events in due to order (if applicable)	
	State the underlying cause on the lowest used line	
2	Other significant conditions contributing to death (time intervals can be included in brackets after the condition)	

Cause of death*		Time interval between onset and death
a	Cerebral haemorrhage	4 hours
b	Due to Metastasis of the brain	4 months
c	Due to Breast cancer	5 years
d	Due to	

Arterial hypertension (3 years); Diabetes mellitus (10 years)

*This does not mean the mode of dying, e.g. heart failure, respiratory failure. It means the disease, injury, or complication that caused death.

What is the cause of death according to the death certificate shown below?

- (A) Breast Cancer
- (B) Secondaries
- (C) Cerebral Hemorrhage
- (D) All of the Above

Correct Answer: (D) All of the Above

SOLUTION:

Step 1: On a death certificate the cause of death is the entire causal chain entered by the certifier, read from the immediate cause back to the underlying disease.

Step 2: This certificate documents breast cancer that spread to give secondaries, with a cerebral haemorrhage as the final fatal event, so the three entries form one continuous sequence.

Step 3: Since each link, the originating cancer, its metastases and the terminal bleed, is part of how death came about, no single item alone is the answer.

Step 4: Therefore the cause of death encompasses all of the listed conditions together.

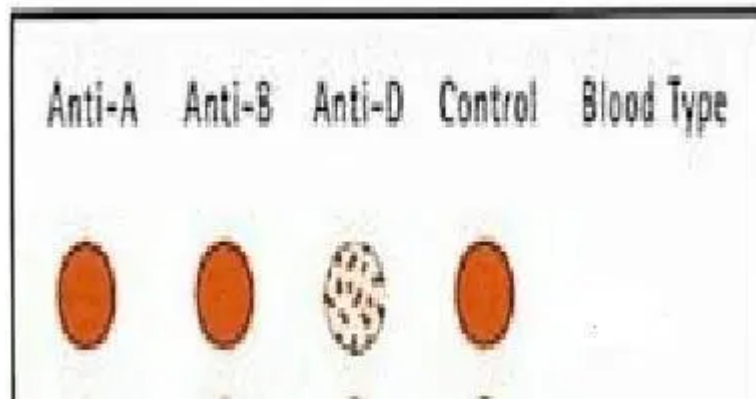
All of the Above

Quick Tip: A death certificate captures the whole sequence of events, so consider every

listed condition together.

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281.



Identify the blood grouping process done here. The slide shows the test cells with anti-D reagent and a control. Which blood group does this signify?

- (A) A-ve
- (B) B+ve
- (C) O+ve
- (D) Rh group

Correct Answer: (D) Rh group

SOLUTION:

Step 1: Focus on the reagent in use. A single Anti-D reagent applied to the patient cells is the hallmark of Rh typing, so the process being shown is Rh (D) grouping.

Step 2: Read the agglutination pattern. Clumping with Anti-D means the cell carries the D antigen and is labelled D positive; a smooth, clump-free reaction means the D antigen is absent and the cell is D negative.

Step 3: Recall that anti-D is not a naturally occurring antibody. Sensitisation happens through pregnancy or transfusion, which is why D status is critical in obstetrics and transfusion practice.

Step 4: The choices naming specific ABO types with signs are distractors, because they would require anti-A and anti-B reagents. The image only tests for the Rh

group.

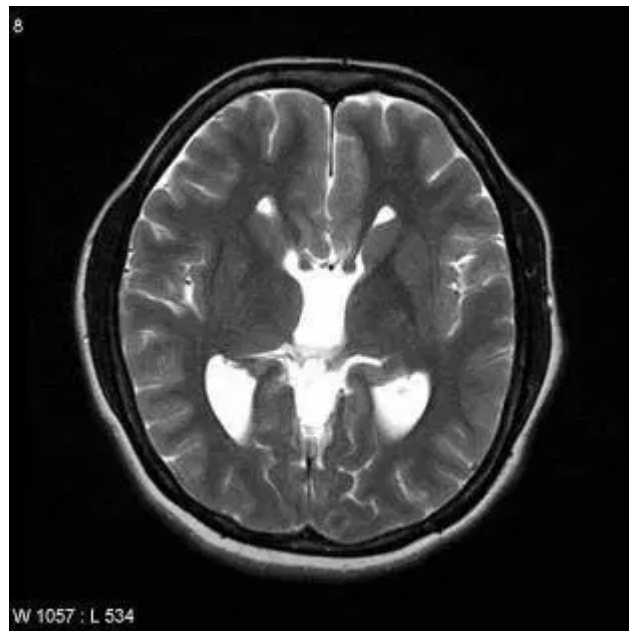
Anti-D + cells → agglutination = D positive

Rh group

Quick Tip: A reaction read against Anti-D reagent tells you the D antigen status, not the ABO type.

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282.



Identify the condition as shown in the image given below.

- (A) Callosal dysgenesis
- (B) Dandy walker syndrome
- (C) Aicardi syndrome
- (D) Septo optic dysplasia

Correct Answer: (A) Callosal dysgenesis

SOLUTION:

Step 1: Recognise the imaging pattern. Parallel, widely separated lateral ventricles that look like a top-down view of a race car point straight to agenesis of the corpus callosum, i.e. callosal dysgenesis.

Step 2: Understand the cause. Without the corpus callosum, longitudinal Probst bundles run along the medial walls and push the ventricles apart, generating the racing car outline.

Step 3: Note the supporting features. Colpocephaly (disproportionate dilation of the occipital horns and trigones) and high-riding third ventricle accompany the sign.

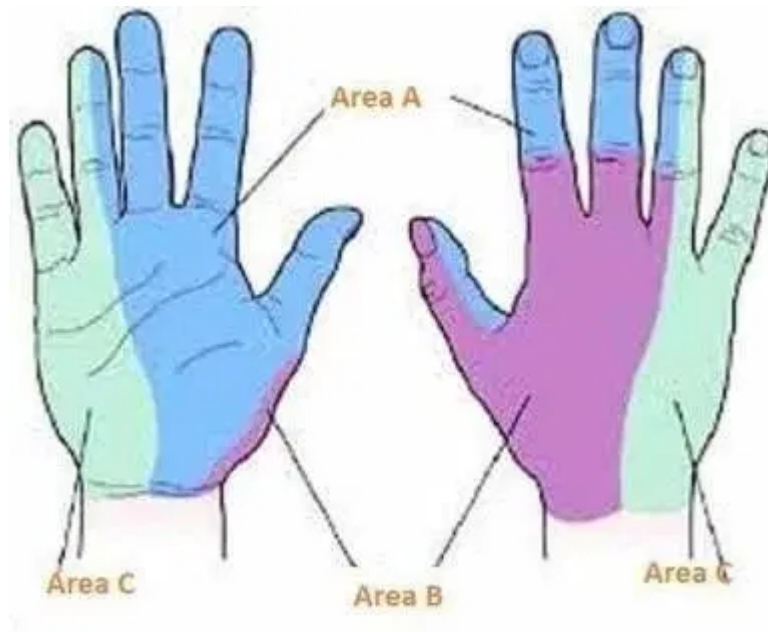
Step 4: Exclude the rest. A posterior fossa cyst suggests Dandy-Walker, missing septum pellucidum suggests septo-optic dysplasia, and chorioretinal lacunae plus infantile spasms suggest Aicardi. Only callosal dysgenesis fits.

Callosal dysgenesis

Quick Tip: Widely spaced lateral ventricles resembling a Formula One car from above is the racing car sign.



283.



Which nerve supplies the region marked as 'Area B' in the image?

- (A) Ulnar nerve
- (B) Median nerve
- (C) Radial nerve
- (D) Posterior interosseous nerve

Correct Answer: (C) Radial nerve

SOLUTION:

Step 1: Localise Area B to the lateral part of the back of the hand, the zone classically tested for radial sensory function.

Step 2: Trace the supply. The superficial branch of the radial nerve is the sensory continuation that fans out over the lateral dorsum of the hand.

Step 3: Add the digital detail. It covers the dorsal skin over the proximal thumb, index finger, and the lateral half of the middle finger up to the level of the proximal phalanges.

Step 4: Rule out neighbours. The ulnar nerve owns the medial dorsum, the median nerve owns the volar fingertips, and the posterior interosseous nerve carries no cutaneous sensation of this region.

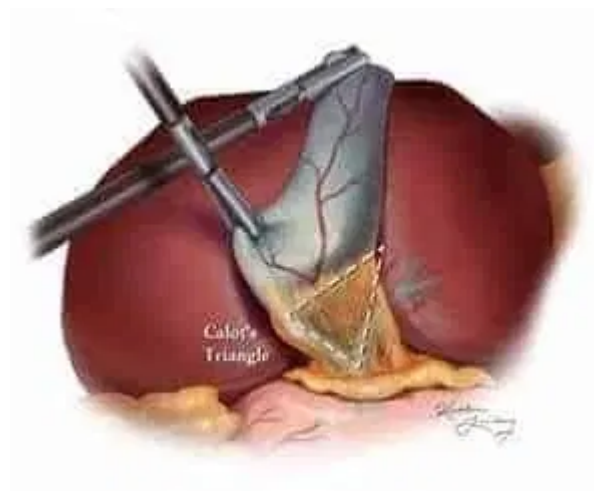
Area B = lateral dorsum → superficial radial nerve

Radial nerve

Quick Tip: The lateral dorsum of the hand and dorsal thumb-index skin is radial nerve territory.

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284.



Which of the following is NOT a boundary of the structure shown in the given image?

- (A) Common hepatic duct
- (B) Cystic duct
- (C) Inferior surface of the liver
- (D) Gall bladder

Correct Answer: (D) Gall bladder

SOLUTION:

Step 1: Name the space. The triangle at the liver hilum bounded by ductal structures is Calot's (cystohepatic) triangle, the key landmark during cholecystectomy.

Step 2: List its sides. Going around, the medial side is the common hepatic duct, the inferior side is the cystic duct, and the superior side is the inferior surface of the liver.

Step 3: Recall the contents versus the borders. The cystic artery runs inside the triangle, so it is a content; in the old 1891 version it was treated as the superior border, but the modern border is the liver edge.

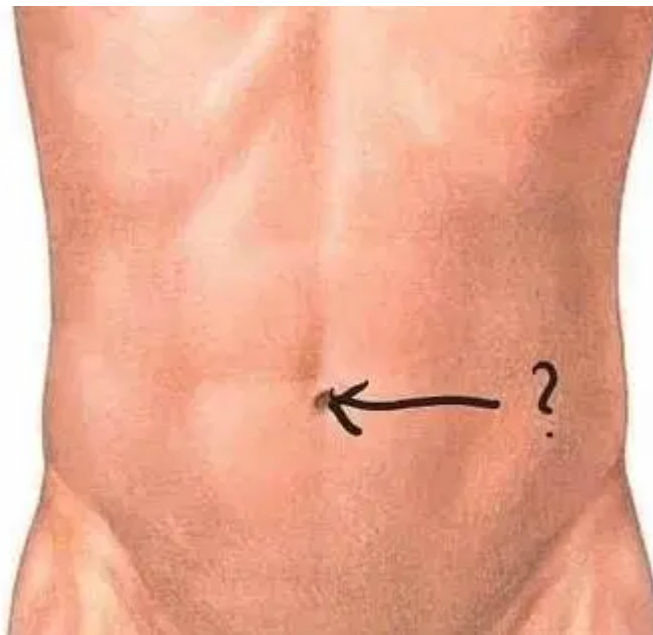
Step 4: Identify the odd one out. Three options are genuine borders; the gall bladder is the organ the triangle helps expose, not a side of it.

Gall bladder

Quick Tip: Calot's triangle borders are common hepatic duct, cystic duct, and inferior liver surface.

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285.



The marked area in the given image is supplied by which dermatome?

- (A) T8
- (B) T9
- (C) T10
- (D) T11

Correct Answer: (C) T10

SOLUTION:

Step 1: Anchor on the key sensory point. The umbilicus is the classic exam landmark for one specific thoracic dermatome.

Step 2: Apply the rule. At the midclavicular line, the horizontal level of the umbilicus maps to T10.

Step 3: Build the surrounding ladder. T7 is one quarter, T8 is one half, and T9 is three quarters of the way from the xiphoid to the umbilicus, after which T10 sits exactly at the umbilicus.

Step 4: Confirm the answer. Since the marked region is the umbilical level, it cannot be T8, T9, or T11, leaving T10.

umbilicus → T10 dermatome

T10

Quick Tip: The umbilicus is the landmark for the T10 dermatome.

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286.



Identify the type of the fibre marked in the image of the internal capsule.

- (A) Projection fibres
- (B) Short association fibres
- (C) Long association fibres
- (D) Commissural fibres

Correct Answer: (A) Projection fibres

SOLUTION:

Step 1: Identify the structure. The dense white-matter band wedged between the basal ganglia and thalamus is the internal capsule.

Step 2: Classify its traffic. It carries cortico-spinal, cortico-bulbar, and thalamo-cortical axons, all of which travel between the cortex and distant structures below it, the definition of projection fibres.

Step 3: Use the shape clue. On a horizontal cut it forms a V with a genu, anterior limb, posterior limb, plus retrolenticular and sublenticular parts that carry optic and auditory radiations.

Step 4: Eliminate the others. Association fibres stay within a hemisphere and commissural fibres cross between hemispheres, neither of which describes the internal capsule.

cortex ↔ subcortical targets = projection fibres

Projection fibres

Quick Tip: The internal capsule carries cortex-to-cord axons, which are projection fibres.



287.



Identify the structure marked by the red arrow in the given image.

- (A) Great vein of Galen
- (B) Pineal gland
- (C) Fornix
- (D) Falx cerebri

Correct Answer: (C) Fornix

SOLUTION:

Step 1: Read the shape. A slender C-shaped white matter arch curving beneath the corpus callosum is the fornix, the hippocampal output pathway.

Step 2: Follow its course. It runs from the hippocampus toward the mammillary bodies of the hypothalamus and the anterior thalamic nuclei, linking memory circuits of the limbic system.

Step 3: Track its build-up. Myelinated fibres start as the alveus, condense into the fimbria, then form the crus, which arches forward through the body to the anterior columns that dive into the hypothalamus.

Step 4: Reject the distractors. The vein of Galen is vascular, the pineal gland is a small midline gland, and the falx cerebri is a dural partition, so only the fornix fits

the arrowed tract.

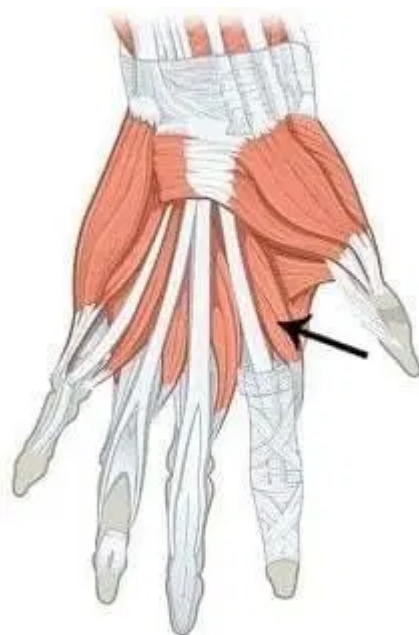
hippocampus → fornix → mammillary bodies

Fornix

Quick Tip: The C-shaped tract from hippocampus to mammillary bodies is the fornix.

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288.



What is the nerve supply of the marked structure in the given image?

- (A) Anterior interosseous nerve
- (B) Posterior interosseous nerve
- (C) Ulnar nerve
- (D) Median nerve

Correct Answer: (D) Median nerve

SOLUTION:

Step 1: Identify the muscle. The arrow points to the radial-most lumbrical, the first lumbrical, which arises from the flexor digitorum profundus tendon to the

index finger.

Step 2: Apply the innervation rule for intrinsic hand muscles. The deep branch of the ulnar nerve handles almost everything in the hand, but a small lateral group is carved out for the median nerve - the thenar eminence and the first two lumbricals.

Step 3: Since the first lumbrical sits in that lateral median-supplied group, its motor fibres travel in the median nerve. The MEAT-LOAF aid confirms **Median** → Lateral two lumbricals, Opponens pollicis, Abductor pollicis brevis, Flexor pollicis brevis.

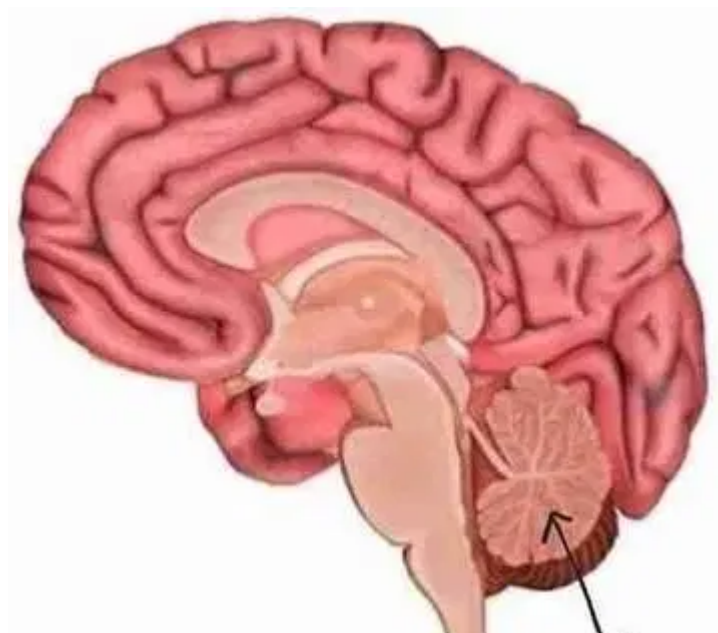
Step 4: Eliminating distractors: the ulnar nerve supplies the third and fourth lumbricals only; the interosseous nerves are forearm branches that never reach these intrinsic muscles. Hence the correct supply is the median nerve.

Median nerve

Quick Tip: First lumbrical belongs to the lateral two - think MEAT-LOAF.

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289.



Identify the marked structure in the image.

- (A) Cerebrum
- (B) Brain stem
- (C) Corpus callosum
- (D) Cerebellum

Correct Answer: (D) Cerebellum

SOLUTION:

Step 1: Use the position of the marked part. It sits in the posterior cranial fossa, below the tentorium and behind the brain stem - a textbook description of the cerebellum.

Step 2: Confirm by function and relations. The cerebellum coordinates movement and balance, lies inferior to the occipital and temporal lobes, and is roofed by the tentorium cerebelli separating it from the cerebrum.

Step 3: The fourth ventricle lies between it and the ventrally placed pons, anchoring it firmly in the posterior fossa.

Step 4: Rule out the rest: the cerebrum is supratentorial, the brain stem is the anterior stalk, and the corpus callosum is a deep midline white-matter band. The marked structure is therefore the cerebellum.

Cerebellum

Quick Tip: Posterior cranial fossa, below the tentorium - the little brain.

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290. Nerve injured in Frey's syndrome is:

- (A) Auriculotemporal nerve
- (B) Great auricular nerve
- (C) Lingual nerve
- (D) Inferior alveolar nerve

Correct Answer: (A) Auriculotemporal nerve

SOLUTION:

Step 1: Recall the clinical picture of Frey's syndrome - gustatory sweating and flushing of the cheek while eating, usually months after parotid surgery.

Step 2: Trace the responsible nerve. The auriculotemporal nerve relays postganglionic parasympathetic secretomotor fibres from the otic ganglion to the parotid gland; it runs right through the surgical field of a parotidectomy.

Step 3: When this nerve is cut, the parasympathetic fibres regrow and misconnect with the cutaneous sweat glands originally meant for sympathetic supply, so a meal that should drive salivation instead drives sweating.

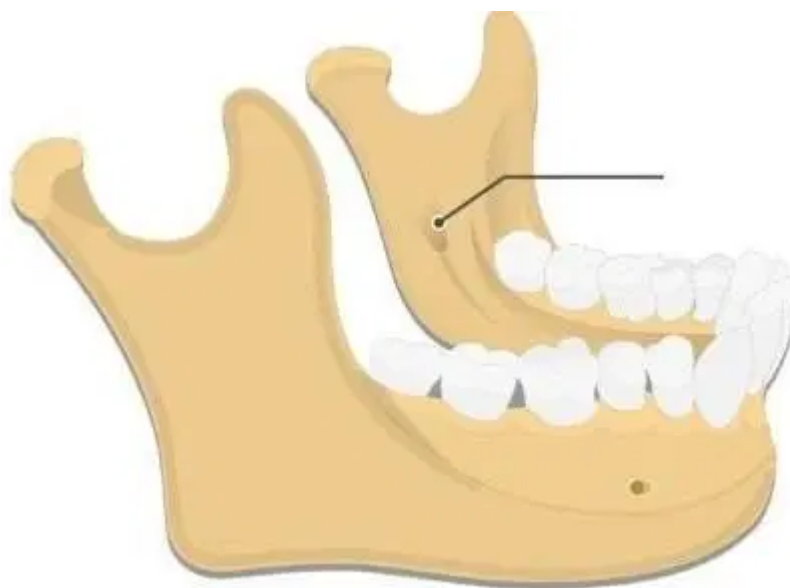
Step 4: Therefore the auriculotemporal nerve is the injured structure; the lingual, great auricular and inferior alveolar nerves play no part in this aberrant reinnervation.

Auriculotemporal nerve

Quick Tip: Gustatory sweating after parotid surgery points to one nerve near the parotid.

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291.



Which nerve passes through the marked foramen in the given image?

- (A) Lingual nerve
- (B) Mandibular nerve
- (C) Chorda tympani nerve
- (D) Inferior alveolar nerve

Correct Answer: (D) Inferior alveolar nerve

SOLUTION:

Step 1: Pinpoint the landmark. The arrow marks a hole on the inner aspect of the mandibular ramus - the mandibular foramen, guarded anteriorly by the lingula.

Step 2: Recall its contents. This foramen begins the mandibular canal, and the neurovascular bundle entering it is the inferior alveolar nerve with its accompanying artery and vein.

Step 3: The nerve travels through the canal giving dental branches to the mandibular teeth before emerging at the mental foramen as the mental nerve. This is also the target of the inferior alveolar nerve block in dentistry.

Step 4: So the answer is the inferior alveolar nerve. The mandibular nerve is its parent trunk, while the lingual and chorda tympani lie outside the bone and never pass through this foramen.

Inferior alveolar nerve

Quick Tip: Medial surface of the ramus - the gateway to the lower teeth.

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292.



Identify the marked muscle 'A' in the diagram.

- (A) Brachioradialis
- (B) Extensor carpi radialis longus
- (C) Flexor carpi radialis
- (D) Extensor carpi ulnaris

Correct Answer: (B) Extensor carpi radialis longus

SOLUTION:

Step 1: Read the attachments shown. Muscle A starts at the lateral epicondyle and supraepicondylar ridge of the humerus and ends on the dorsal base of the second metacarpal - the route of the extensor carpi radialis longus.

Step 2: Note its relations. Proximally it lies deep to the brachioradialis on the lateral forearm, a clue separating it from its neighbour.

Step 3: Confirm by action and nerve. It extends and abducts the hand at the wrist and is supplied by the radial nerve, consistent with a posterior-compartment extensor.

Step 4: Distractors fail: brachioradialis inserts at the radial styloid, flexor carpi radialis is an anterior-compartment flexor, and extensor carpi ulnaris reaches the fifth metacarpal for ulnar deviation. Muscle A is the extensor carpi radialis longus.

Extensor carpi radialis longus

Quick Tip: Dorsal forearm, inserts on metacarpal II, deep to brachioradialis.

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293.



Which of the following nail findings is seen in the condition shown below?

- (A) Pterygium
- (B) Pigmentation
- (C) Pitting
- (D) Ridges

Correct Answer: (C) Pitting

SOLUTION:

Step 1: Describe what the photo shows - numerous tiny pin-point pits dotting the surface of the nail plate, the hallmark of nail pitting.

Step 2: Understand the mechanism. Brief patchy disease of the proximal nail

matrix produces clusters of parakeratotic cells that crumble away once the plate reaches the surface, leaving small depressions.

Step 3: Link it clinically. This pattern is most characteristic of psoriasis and is also encountered in alopecia areata and chronic eczema, so the finding is pitting.

Step 4: Separate it from the others: a pterygium is a scarring band, pigmentation is a colour change, and ridging is a series of grooves or lines. The punctate holes shown correspond only to pitting.

Pitting

Quick Tip: Pin-point holes in the nail plate - think psoriasis.