FMGE June 2022 Question Paper

205 recall questions with answers and explanations.

Recall honesty note: NBEMS does not release official papers, so these are memory-based recall questions, not official papers. Image-based questions are excluded for now because the bank's images are currently unavailable.

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Question 1. Based on the electrocardiogram (ECG) shown,
what is the most likely diagnosis?

A. Hypokalemia

B. Hyperkalemia

C. Hypothermia

D. Hypocalcemia

Correct answer: C

Hypothermia is a life-threatening condition in which the core body temperature falls below 35°C (95°F), leading to significant effects on cardiac conduction. The ECG shown demonstrates Osborn waves (J waves), which are characteristic findings in hypothermia. These appear as distinct positive deflections at the junction (J-point) between the QRS complex and ST segment, giving a typical “camel hump” appearance, especially in the precordial leads (V3–V6).

In addition to Osborn waves, hypothermia can cause sinus bradycardia, prolonged PR interval, and widening of the QRS complex due to slowed electrical conduction in the myocardium. These changes are reversible with gradual rewarming of the patient.

Why other options are incorrect:

(A)

Hypokalemia → Flattened T waves and prominent U waves

(B)

Hyperkalemia → Tall, peaked (“tented”) T waves

(D)

Hypocalcemia → Prolonged QT interval without J waves

Question 2. Which of the following statements regarding
the staffing pattern of an Urban Primary Health
Centre (UPHC) is incorrect?

A. 2 doctors

B. 5 Multiskilled staff nurse

C. 1 lab technician

D. 1 pharmacist

Correct answer: B

Under the Indian Public Health Standards (IPHS) guidelines, the staffing pattern for an Urban Primary Health Center (U-PHC) is specifically defined. A standard U-PHC is staffed by 4 to 5 staff nurses in total. Statement B is often considered "false" in examinations because the specific core staffing recommendation for a U-PHC typically lists 2 staff nurses as the essential baseline requirement for a facility serving a 50,000 population, with additional staff depending on the workload. The center does include 2 doctors (Option A—usually 1 full-time and 1 part-time/ regular), 1 lab technician (Option C), and 1 pharmacist (Option D). The U-PHC serves as the primary urban healthcare delivery point, focusing on outpatient services and outreach. Therefore, according to fixed standard staffing charts, the figure of 5 multi-skilled nurses is an overstatement of the essential baseline staff.

Question 3. Post-exposure Measles vaccine should be given ?

A. With in 7 days

B. With in 3 days

C. With in 1 days

D. With in 10 days

Correct answer: B

Measles is a highly contagious viral infection. For susceptible individuals who have been exposed to the virus, the measles vaccine can prevent or modify the disease if administered promptly. The recommended window for post-exposure vaccination is within 72 hours (3 days) of exposure. Administration within this timeframe provides active immunity that can overtake the natural infection's incubation period. If the 3-day window has passed, immunoglobulin (IG) can be given up to 6 days after exposure to provide passive immunity. Options A, C, and D do not match the clinically established "golden period" for post-exposure prophylaxis with the vaccine. This intervention is crucial during outbreaks to protect unimmunized contacts. Therefore, the 3-day rule is the standard epidemiological practice for post-exposure measles control.

Question 4. In biomedical waste management, which category of waste is disposed of in a yellow-colored bag?

A. Blood bag

B. Gloves

C. Sharps

D. Urine bag

Correct answer: A

According to the Biomedical Waste Management Rules in India, the yellow bag is used for highly infectious, non-plastic waste. This includes anatomical waste, soiled cotton, plaster casts, and

blood bags. Waste in yellow bags is typically disposed of through incineration. Gloves (Option B) and recyclable contaminated plastic waste are placed in red bags. Sharps (Option C), such as needles and blades, are placed in white, translucent, puncture-proof containers. Urine bags (Option D), if emptied and treated, are generally considered recyclable plastic waste belonging in red bags. Proper segregation at the source is vital to prevent environmental contamination and healthcare-associated infections. Therefore, because blood bags are considered highly hazardous infectious waste that requires high-temperature destruction, they must be discarded in the yellow bag.

Question 5. What is the method used to assess the relative risk (RR)?

A. Case control study

B. Cohort study

C. Randomized controlled trial

D. Cross-sectional study

Correct answer: B

Relative Risk (RR) is a measure of the strength of the association between an exposure and an outcome. It is defined as the ratio of the incidence of the disease in the exposed group to the incidence in the non-exposed group. Because a cohort study begins with exposed and non-exposed individuals and follows them forward in time to observe the development of disease, it allows for the direct calculation of incidence, and thus, the Relative Risk. A Case-control study (Option A) uses the Odds Ratio (OR) because it looks backward and cannot determine true incidence. A Randomized Controlled Trial (Option C) also allows for RR calculation but is an experimental rather than observational design. A Cross-sectional study (Option D) measures prevalence rather than incidence. Therefore, the cohort study is the classic observational method for determining RR.

Question 6. A neonate shows hypoplasia of the mandible and zygomatic bones, malformed external ears, and downward-slanting palpebral fissures. Abnormal development of which pharyngeal arch most likely accounts for these anomalies?

A. Pharyngeal arch 1

B. Pharyngeal arch 2

C. Pharyngeal arch 3

D. Pharyngeal arch 4

Correct answer: A

The clinical presentation described is characteristic of Treacher Collins syndrome, which results from the abnormal development of the first pharyngeal arch. The first pharyngeal arch, also

known as the mandibular arch, is responsible for forming the mandible, maxilla, zygomatic bones, and certain structures of the external and middle ear. Specifically, the maxillary process forms the zygomatic bone and maxilla, while the mandibular process forms the mandible through Meckel’s cartilage. Defects in the second pharyngeal arch (Option B) would primarily affect the stapes, styloid process, and muscles of facial expression. The third arch (Option C) contributes to the greater horn of the hyoid and stylopharyngeus muscle. The fourth arch (Option D) is involved in forming laryngeal cartilages and pharyngeal constrictors. Therefore, because the zygomatic and mandibular bones are the primary structures affected, the first pharyngeal arch is the definitive site of abnormal embryological development.

Question 7. At which vertebral level is the abdominal plane marked as 2?

A. Lower border of L1

B. Upper border of L1

C. Upper border of L3

D. Lower border of L4

Correct answer: C

In the anatomical division of the abdomen into nine regions, specific horizontal planes are used as landmarks. The plane marked as '2' in the provided diagram is the subcostal plane. This plane is defined by a line connecting the lowest points of the costal margins (the 10th costal cartilage). Anatomically, the subcostal plane corresponds to the level of the upper border of the L3 vertebra. The transpyloric plane, which is often labeled above it, is located at the lower border of the L1 vertebra (Option A) or the upper border of L1 (Option B) depending on the anatomical reference used for the pylorus. The supracristal plane, used to mark the highest points of the iliac crests, typically corresponds to the lower border of L4 (Option D). Therefore, based on standard anatomical conventions for the subcostal plane, the correct vertebral level is L3.

Question 8. Which structure primarily facilitates the pronation and supination movements of the forearm?

A. Pivot joint

B. Saddle joint

C. Ellipsoid joint

D. Ball and socket joint

Correct answer: A

Supination and pronation are the unique rotational movements of the forearm where the radius rotates around the ulna. These movements occur specifically at the superior and inferior radioulnar joints, which are classified as pivot (trochoid) joints. In a pivot joint, a rounded bone

rotates within a ring formed by another bone and a ligament. A saddle joint (Option B), such as the first carpometacarpal joint, allows for flexion, extension, and opposition but not rotation. An ellipsoid joint (Option C), like the wrist joint, allows for biaxial movement but lacks independent rotation. A ball and socket joint (Option D), such as the shoulder or hip, is multiaxial but is not the specific joint type responsible for the distinct forearm rotation between the radius and ulna. Thus, the anatomical design of the pivot joint at the radioulnar articulation is the primary structure enabling pronation and supination.

6.

Please determine the size of the thyroid gland
based on the provided image.

Why other options are wrong:

(C) Orotracheal intubation : May not be feasible
in severe facial trauma

(B) Laryngeal mask airway : Not a definitive
airway; poor seal, aspiration risk

(D) Mask ventilation : Ineffective due to facial
disruption

During a preoperative assessment, a 45-year-old patient undergoes evaluation of the airway to predict the likelihood of difficulty during endotracheal intubation. On inspection, the soft palate, uvula, fauces (pillars), and tonsils are all fully visible without any obstruction. Based on these findings, which Mallampatti score does this airway correspond to?

(A)
Grade 1

(B)
Grade 2

(C)
Grade 3

(D)
Grade 4

283. (A) Grade 1

The Mallampati classification is used by
anesthesiologists
to
predict
the
ease
of

endotracheal intubation. A Mallampati Score of 1 is assigned when there is complete visualization of the soft palate, uvula, fauces, and tonsillar pillars. This score indicates that intubation is likely to be straightforward. Score 2 (Option B) involves visualization of the soft palate and the majority of the uvula, but the pillars are obscured. Score 3 (Option C) allows for the visualization of the soft palate and the base of the uvula only. Score 4 (Option D) is assigned when the soft palate is not visible at all, and only the hard palate can be seen; this score predicts a "difficult airway." Accurate assessment requires the patient to sit upright, open their mouth wide, and protrude the tongue without phonating. Identifying a Score 1 allows the surgical team to proceed with standard intubation protocols, while higher scores necessitate preparation for advanced airway management techniques.

Which vertebral level corresponds to Tuffier's line, a clinically relevant anatomical landmark?

(A)

L2-L3

(B)

L4-L5

(C)

L5-S1

(D)

L3-L4

284. (B) L4-L5

Tuffier's line (also known as the intercristal line) is a horizontal line connecting the highest points of the iliac crests. In most adults, this line passes through either the body of the L4 vertebra or the L4-L5 intervertebral space. This landmark is of critical clinical importance for performing a lumbar puncture or administering spinal and epidural anesthesia. Since the adult spinal cord typically ends (conus medullaris) at the L1-L2

level, inserting a needle at or below Tuffier's line (such as the L3-L4 or L4-L5 spaces) provides a significant safety margin to avoid direct cord injury. Options A (L2-L3), C (L5-S1), and D (L3-L4) are incorrect Anatomical correlates for this specific surface landmark. While the exact level can vary slightly with age or positioning, using Tuffier's line as the primary guide remains the standard practice in clinical neurology and anesthesia to ensure the safe entry into the subarachnoid space.

Which of the following condition is depicted in the given CT image?

(A)

HCC

(B)

Hepatitis

(C)

Congenital Adrenal Hyperplasia

(D)

Cirrhosis

285. (C) Congenital Adrenal Hyperplasia (CAH)

The CT image shows bilaterally enlarged adrenal glands with a lobulated / cerebriform appearance, which is a classic radiological finding of congenital adrenal hyperplasia.

In CAH, chronic ACTH stimulation leads to diffuse adrenal hyperplasia, typically involving both adrenal glands symmetrically.

Why the other options are incorrect

(A) HCC (Hepatocellular carcinoma) – Would show a focal liver mass with arterial enhancement and washout, not bilateral adrenal enlargement.

(B) Hepatitis – Causes diffuse liver changes, not adrenal enlargement.

(D) Cirrhosis – Shows a shrunken, nodular liver with portal hypertension features (splenomegaly, ascites), not this appearance.

A 55-year-old man presents to the emergency department with high-grade chills and violent shaking (rigors), along with sudden-onset severe pain in the right flank. This clinical picture raises concern for a serious infectious or inflammatory condition involving the abdomen or flank. Based on these symptoms and the expected findings from appropriate diagnostic investigations, including imaging studies, which of the following conditions should be considered in the differential diagnosis?

(A)

Cholecystitis

(B)

Emphysematous Pyelonephritis

(C)

Small Bowel Obstruction

(D)

Volvulus

286. (B) Emphysematous Pyelonephritis

The clinical combination of high-grade fever with rigors and acute right flank pain in a 55-year-old patient points strongly toward a severe renal infection. As established in the previous analysis, Emphysematous Pyelonephritis is the most likely diagnosis that accounts for such intense systemic symptoms and localized flank distress. This condition involves gas-forming bacteria invading the kidney tissue. Cholecystitis (Option A) would typically present with right upper quadrant pain radiating to the shoulder and positive Murphy's sign, rather than primary flank pain and rigors. Small Bowel Obstruction (Option C) and Volvulus (Option D) present with diffuse abdominal distension, vomiting, and constipation rather than localized flank pain and a high febrile response. Diagnosis of emphysematous pyelonephritis is confirmed via CT scan showing gas in the kidney. Immediate management focuses on broad-spectrum

antibiotics and stabilization of any underlying
diabetes, as this condition carries a high
mortality rate without rapid intervention.
A newborn presents with bilious vomiting, prompting a radiographic evaluation to determine the underlying cause. Since bilious vomiting in a neonate is a critical sign of intestinal obstruction, the imaging findings are key to establishing the diagnosis. Which characteristic radiographic sign is most likely to be observed in this scenario
(A)
Air crescent sign
(B)
Double bubble sign
(C)
Cupola sign
(D)
None of the above
287. (B) Double bubble sign
Bilious vomiting in a newborn is a pediatric
emergency
indicating
a
high
intestinal

Examination Paper June 2022 Question
PHYSIOLOGY

Question 9. 5.

A. B to D
B. A to C
C. A to D
D. C to D

Correct answer: C

The thyroid gland extends from C5 to T1
vertebral levels, which corresponds to:
1. A = C5 (upper limit)
2. D = T1 (lower limit)
3. So, the correct range is A to D.

The thyroid gland is located in the anterior neck,

just below the larynx, and lies opposite the C5 to T1 vertebrae. It consists of two lateral lobes connected by an isthmus that lies anterior to the 2nd, 3rd, and 4th tracheal rings. The superior poles of the thyroid reach up to the level of the thyroid cartilage (around C5), while the inferior poles extend downward to approximately the C7–T1 level.

Radiologically, especially in lateral neck X-rays, these vertebral landmarks are used to estimate the size and extent of the thyroid gland. Since the gland spans from C5 (A) to T1 (D), the correct option is A to D.

Question 10. Other options are incorrect because:

1. **B to D misses the upper limit (C5)**
2. **A to C misses the lower extension (T1)**
3. **C to D includes only the lower portion of the gland**

Into which dural venous sinus does the great cerebral vein (vein of Galen) drain?

A. A

B. B

C. C

D. D

Correct answer: B

The great cerebral vein (vein of Galen) is a short midline vein formed by the union of the two internal cerebral veins. It drains blood from deep structures of the brain such as the thalamus, basal ganglia, and internal capsule. After formation, it passes posteriorly beneath the splenium of the corpus callosum.

The vein of Galen empties into the straight sinus, which is located at the junction of the falx cerebri and tentorium cerebelli. In the given diagram, label B corresponds to the straight sinus, making it the correct answer.

The straight sinus also receives blood from

the inferior sagittal sinus and sometimes the occipital sinus. From here, blood flows into the confluence of sinuses, and then into transverse and sigmoid sinuses before reaching the internal jugular vein.

Why other options are incorrect:

(A) (Superior sagittal sinus) → drains superficial veins

(C) (Transverse sinus) → downstream channel

(D) (Sigmoid sinus) → final drainage pathway

Please identify the anatomical structure indicated in the provided image.

(A)

Abductor pollicis brevis

(B)

Extensor pollicis brevis

(C)

Abductor pollicis longus

(D)

Extensor pollicis longus

Question 11. These findings, what is the most likely diaglosis?

A. Metastatic breast cancer

B. Multiple myeloma

C. Primary hyperparathyroidism

D. Milk alkali syndrome

Correct answer: B

The provided image and clinical triad are pathognomonic for Multiple Myeloma (Option B). This is a plasma cell malignancy characterized by the "CRAB" features: Calcium elevation (13 mg/dL), Renal insufficiency (Creatinine 2.3), Anemia (Hb 6.9), and Bone lesions. The presence of Bence-Jones proteins (monoclonal light chains) in the urine is a specific diagnostic hallmark. The skull X-ray provides definitive visual confirmation, showing multiple, small, well-defined "punched-out" lytic lesions. Metastatic breast cancer (Option A) can cause lytic lesions but would not show Bence-Jones proteins. Primary hyperparathyroidism (Option C) causes hypercalcemia and a "salt and pepper" skull but lacks monoclonal proteins. Milk-alkali syndrome (Option D) involves hypercalcemia without skeletal destruction. Therefore, the combination of specific laboratory markers and pathognomonic radiographic findings confirms Multiple Myeloma as the definitive diagnosis.

Question 12. By what factor does the resistance of an artery increase if its diameter is reduced to one-third of its original value?

A. 9 times

B. 81 times

C. 27 times

D. 18 times

Correct answer: B

According to Poiseuille’s law, the resistance to fluid flow through a vessel is inversely proportional to the fourth power of the radius or diameter . This mathematical relationship is expressed as . If the diameter of an artery is reduced to one-third of its original size, the new resistance can be calculated by substituting the change into the proportionality formula. Since the diameter becomes , the resistance increases by a factor of . Calculating results in 81. Therefore, a three-fold reduction in diameter leads to an 81-fold increase in vascular resistance. Options A (9 times), C (27 times), and D (18 times) do not follow the inverse fourth-power relationship defined by vascular physiology. This principle explains why even small changes in vessel caliber, such as in atherosclerosis or vasospasm, can significantly impact blood pressure and organ perfusion.

Question 13. How does the affinity of carbon monoxide for hemoglobin compare with that of oxygen?

A. 100

B. 400

C. 250

D. 150

Correct answer: C

Hemoglobin is the primary protein in red blood cells responsible for transporting gases throughout the body. While it is designed to bind oxygen, it has a remarkably higher affinity for carbon monoxide (CO). Physiologically, the affinity of carbon monoxide for hemoglobin is approximately 210 to 250 times greater than that of oxygen. This extremely high affinity means that even at low concentrations, carbon monoxide can displace oxygen from hemoglobin binding sites to form carboxyhemoglobin, significantly reducing the blood's oxygen-carrying capacity. Options A (100), B (400), and D (150) are incorrect based on standard physiological measurements. This preferential binding is the underlying mechanism of carbon monoxide poisoning, as the molecule not only blocks oxygen binding but also shifts the oxygen-hemoglobin dissociation curve to the left, further impeding the release of oxygen to the tissues. Consequently, 250 is the most accurate representative value for this increased affinity.

Question 14. Which substance functions as a second

messenger in the pathway regulating gastric acid secretion?

A. cGMP

B. cAMP

C. CCK-B receptor

D. Ach

Correct answer: B

Gastric acid secretion by parietal cells is regulated by several neurohumoral pathways. When histamine binds to the H2 receptor on the parietal cell membrane, it activates the Gs protein, which stimulates adenylate cyclase to produce cyclic adenosine monophosphate (cAMP). In this specific pathway, cAMP acts as the critical secondary messenger that eventually activates protein kinase A, leading to the stimulation of the H+/K+ ATPase pump . cGMP (Option A) is a secondary messenger for other processes like vasodilation but not for primary gastric acid stimulation. The CCK-B receptor (Option C) is the primary binding site for gastrin, which utilizes the IP3-DAG/calcium pathway as its secondary messenger system rather than cAMP. Acetylcholine (Ach, Option D) is a neurotransmitter that acts as a first messenger by binding to muscarinic M3 receptors. Therefore, cAMP is the correct identification for the secondary messenger involved specifically in the histamine-regulated mechanism of acid secretion.

BIOCHEMISTRY

Question 15. A urine sample from a 4-year-old child appeared normal at first but gradually darkened on standing, with the discoloration becoming more intense over time, as seen by the laboratory technician. This finding suggests deficiency of which enzyme as the underlying cause?

A. Beta-carotene

B. Tyrosine aminotransferase

C. L-ascorbic acid

D. Homogentisic acid oxidase

Correct answer: D

The phenomenon where clear urine turns dark or black upon standing is the classic presentation of alkaptonuria. This rare autosomal recessive disorder is caused by a deficiency of the enzyme homogentisic acid oxidase (Option D) in the phenylalanine-tyrosine metabolic pathway. This deficiency leads to the accumulation of homogentisic acid, which is excreted in the urine and oxidizes into a black pigment (alkapton) when exposed to air. Beta-carotene (Option A) is a precursor to Vitamin A and does not cause urine darkening. Tyrosine aminotransferase deficiency (Option B) leads to Tyrosinemia Type II, characterized by eye and

skin lesions but not black urine. L-ascorbic acid (Option C) is Vitamin C, which is sometimes used as a treatment adjunct but is not the cause of the disease. Therefore, based on the pathognomonic finding of urine darkening upon oxidation, the deficiency of homogentisic acid oxidase is the causative enzyme defect.

Question 16. Complex IV is inhibited by?

A. Rotenone

B. Cyanide

C. Carboxin

D. Antimycin A

Correct answer: B

The electron transport chain (ETC) in mitochondria consists of several complexes responsible for ATP production. Complex IV, also known as cytochrome c oxidase, is the final enzyme in the chain that transfers electrons to oxygen. It is specifically inhibited by cyanide, which binds tightly to the ferric iron (Fe3+) in cytochrome a3, preventing the reduction of oxygen to water. Carbon monoxide and hydrogen sulfide are also known inhibitors of this complex. Rotenone (Option A) is a classic inhibitor of Complex I (NADH dehydrogenase). Carboxin (Option C) inhibits Complex II (succinate dehydrogenase). Antimycin A (Option D) acts on Complex III (cytochrome bc1 complex). Because cyanide blocking prevents the entire ETC from functioning, it leads to rapid cellular asphyxiation and death. Consequently, cyanide is the definitive answer for the inhibition of Complex IV.

Question 17. Which statement correctly explains the key features of the Michaelis–Menten enzyme kinetics curve?

A. Km is directly proportional to substrate concentration

B. Km doesn't vary with the enzyme concentration

C. Km is indirectly proportional to substrate concentration

D. Km has no

relation
to
substrate
concentration

Correct answer: B

The Michaelis constant (Km) is a fundamental parameter in enzyme kinetics that reflects the affinity of an enzyme for its substrate. By definition, Km is equal to the substrate concentration at which the reaction velocity is exactly half of the maximum velocity (Vmax). A critical characteristic of Km is that it is an intrinsic property of the enzyme-substrate pair; therefore, it does not change regardless of the amount of enzyme present in the system. Statements A, C, and D are incorrect because Km is defined at a specific substrate concentration but is not proportional or inversely proportional to it as a variable; rather, Km is a constant used to describe the enzyme's behavior. While Vmax increases with higher enzyme concentration, Km remains stable. Consequently, understanding that Km is independent of enzyme concentration is vital for analyzing how different enzymes interact with their substrates in metabolic pathways.

19. During fasting, through which metabolic pathway does glucagon stimulate the production of glucose?

(A) Glycolysis and gluconeogenesis

(B) Gluconeogenesis and glycogenolysis

Question 18. 18. (B) Km doesn't vary with the enzyme concentration

The Michaelis constant (Km) is a fundamental parameter in enzyme kinetics that reflects the affinity of an enzyme for its substrate. By definition, Km is equal to the substrate concentration at which the reaction velocity is exactly half of the maximum velocity (Vmax). A critical characteristic of Km is that it is an intrinsic property of the enzyme-substrate pair; therefore, it does not change regardless of the amount of enzyme present in the system. Statements A, C, and D are incorrect because Km is defined at a specific substrate concentration but is not proportional or inversely proportional to it as a variable; rather, Km is a constant used to describe

the enzyme's behavior. While Vmax increases with higher enzyme concentration, Km remains stable. Consequently, understanding that Km is independent of enzyme concentration is vital for analyzing how different enzymes interact with their substrates in metabolic pathways.

During fasting, through which metabolic pathway does glucagon stimulate the production of glucose?

A. Glycolysis and gluconeogenesis

B. Gluconeogenesis and glycogenolysis

C. Glycogenesis and gluconeogenesis

D. Only gluconeogenesis

Correct answer: B

During a fasting state, blood glucose levels drop, triggering the secretion of glucagon from the pancreatic alpha cells. Glucagon acts primarily on the liver to elevate blood glucose through two key metabolic pathways. First, it stimulates glycogenolysis, which is the breakdown of stored glycogen into glucose. Second, it promotes gluconeogenesis, the synthesis of new glucose from non-carbohydrate precursors like amino acids and glycerol. Glycolysis (Option A) is the breakdown of glucose to produce energy and is inhibited by glucagon to conserve glucose. Glycogenesis (Option C) is the synthesis of glycogen for storage, which

Question 19. What plasma protein is found in the highest concentration?

A. Bence Jones protein

B. Globulin

C. Fibrinogen

D. Albumin

Correct answer: D

Human plasma contains a variety of proteins that serve essential physiological functions. Among these, albumin is the most abundant, typically accounting for approximately 55% to 60% of the total plasma protein content. It is synthesized in the liver and is vital for maintaining oncotic pressure and transporting various molecules like hormones and fatty acids. Globulins (Option B) are the second most prevalent group, including alpha, beta, and gamma globulins (antibodies), and generally comprise about 35% of plasma proteins. Fibrinogen (Option C) is a large protein involved in blood clotting and is present in much lower concentrations, making up roughly 4%. Bence Jones proteins (Option A) are abnormal light-chain proteins found in the urine and blood of patients with multiple myeloma and are not a standard component of healthy plasma. Therefore, albumin is the correct choice as the highest concentration plasma protein.

Question 20. A patient presenting to the OPD has abdominal pain and diarrhea, along with cutaneous flushing, severe wheezing, and tricuspid valve insufficiency. Contrast-enhanced MRI reveals endocardial fibrosis. Based on this clinical picture, which substance is most likely to be excreted in excess by the patient?

A. Vanillylmandelic acid

B. Imidazoleacetic acid

C. 5-hydroxy indole acetic acid

D. Choline

Correct answer: C

The clinical triad of diarrhea, cutaneous flushing, and wheezing, combined with right-sided heart disease (tricuspid insufficiency and endocardial fibrosis), is pathognomonic for carcinoid syndrome. This syndrome occurs when neuroendocrine tumors, typically from the midgut, secrete excessive amounts of serotonin into the systemic circulation. Serotonin is metabolized in the liver and lungs into 5-hydroxy indole acetic acid (5-HIAA), which is then excreted in the urine. Consequently, elevated urinary levels of 5-HIAA are the gold standard diagnostic marker for this condition. Vanillylmandelic acid (VMA, Option A) is a metabolite of catecholamines and is used to diagnose pheochromocytoma. Imidazoleacetic acid (Option B) is a metabolite of histamine. Choline (Option D) is involved in lipid metabolism and neurotransmission but has no diagnostic relevance here. Therefore, excessive 5-HIAA excretion is the correct biochemical finding associated with these symptoms.

Question 21. Which enzyme acts as the primary glucose sensor in pancreatic β-cells and plays a key role

in regulating insulin secretion?

A. Hexokinase I

B. Hexokinase II

C. Hexokinase III

D. Hexokinase IV

Correct answer: D

Insulin secretion from pancreatic beta cells is triggered by rising blood glucose levels. The critical first step in this process is the phosphorylation of glucose, which is catalyzed by hexokinase IV, also known as glucokinase. Unlike Hexokinases I, II, and III (Options A, B, and C), which have a high affinity for glucose and are inhibited by their product (glucose-6-phosphate), hexokinase IV has a low affinity and is not inhibited by its product. This low affinity allows the enzyme to act as a "glucose sensor," ensuring that its activity increases linearly as blood glucose levels rise above normal fasting ranges. This metabolic rate-limiting step determines the rate of ATP production, which ultimately leads to the closing of K+ channels and the release of insulin. Therefore, hexokinase IV is the specific enzyme uniquely suited for glucose sensing and the regulation of insulin secretion.

Question 22. What is the most suitable dietary modification for a middle-aged man with a rare form of pyruvate dehydrogenase deficiency presenting with high anion gap metabolic acidosis?

A. High protein and low carbohydrate intake

B. High carbohydrate and low fat intake

C. High fat and low carbohydrate intake

D. Only carbohydrate intake henceforth

Correct answer: C

Pyruvate dehydrogenase (PDH) is the enzyme complex that converts pyruvate into acetyl-CoA, linking glycolysis to the TCA cycle. A deficiency in PDH leads to the shunting of pyruvate into lactic acid, causing high anion gap metabolic acidosis. The most effective dietary management for these patients is a ketogenic diet, which is characterized by high fat and low carbohydrate intake. This diet provides an alternative fuel source by generating ketone bodies that can be converted into acetyl-CoA bypassing the defective PDH step. High carbohydrate intake (Options B and D) would exacerbate the condition by increasing pyruvate and lactic acid levels. While high protein (Option A) is part of many diets, it is not the primary mechanism for bypassing the PDH defect. Therefore, a high-fat, low-carbohydrate regimen is the specific dietary therapy used to manage metabolic acidosis in PDH deficiency.

Question 23. Insulin acts on glucose metabolism by

A. Increasing facilitated diffusion of glucose

B. Permeability of glucose across cell membrane

C. Increasing reabsorption of glucose from renal tubules

D. Increasing glucose reabsorption from intestine

Correct answer: A

Insulin is the primary anabolic hormone responsible for lowering blood glucose levels. Its main mechanism of action involves binding to its receptor on skeletal muscle and adipose tissue, which triggers the translocation of glucose transporter 4 (GLUT4) to the cell membrane. This dramatically increases the rate of facilitated diffusion of glucose into the cells. While this process effectively increases the "permeability" (Option B), facilitated diffusion is the more precise physiological term for the protein-mediated transport involved. Insulin does not increase the reabsorption of glucose from the renal tubules (Option C) or the intestine (Option D); in fact, renal glucose reabsorption is primarily managed by SGLT transporters and is not directly regulated by insulin. By increasing the cellular uptake of glucose through facilitated diffusion, insulin reduces systemic blood sugar and promotes storage and utilization. Thus, Option A is the correct physiological description.

Question 24. Which of the following mechanisms explains how atrial natriuretic peptide (ANP) produces its physiological effects?

A. cAMP

B. cGMP

C. IP3-DAG

D. JAK/STAT

Correct answer: B

Atrial Natriuretic Peptide (ANP) is a hormone released by the cardiac atria in response to stretch, serving to lower blood pressure and volume. Its mechanism of action begins when it binds to its specific receptor (NPR-A), which possesses intrinsic guanylyl cyclase activity. This leads to the direct conversion of GTP into cyclic guanosine monophosphate (cGMP) . cGMP then

acts as the secondary messenger to activate protein kinase G, resulting in vasodilation and increased renal sodium excretion . cAMP (Option A) is the secondary messenger for hormones like glucagon and epinephrine. IP3-DAG (Option C) is utilized by hormones such as oxytocin and vasopressin acting on V1 receptors. The JAK/STAT pathway (Option D) is typical for growth hormone and cytokines. Therefore, because ANP receptors act through the guanylyl cyclase system, cGMP is the definitive secondary messenger that elucidates its physiological effects.

Question 25. What is the most prevalent cause of macrocytic anemia among the options provided?

A. Vitamin B12 deficiency

B. Bone marrow disorders

C. Alcohol

D. Drug-induced

Correct answer: A

Macrocytic anemia is characterized by an elevated mean corpuscular volume (MCV > 100 fL). Among the provided options, Vitamin B12 deficiency is the most prevalent cause, specifically when considering megaloblastic anemia. B12 is essential for DNA synthesis; its absence leads to impaired nuclear maturation while cytoplasmic growth continues, resulting in large, immature cells. Alcohol consumption (Option C) is a very common cause of "non-megaloblastic" macrocytosis, but it is often less frequent or severe than B12 or folate deficiencies in general clinical populations. Bone marrow disorders (Option B), such as myelodysplastic syndrome, and drug-induced causes (Option D), like hydroxyurea or zidovudine, are significant but less common than nutritional deficiencies. Therefore, because Vitamin B12 deficiency is a leading global cause of macrocytic megaloblastic anemia, it remains the most prevalent and classically identified etiology in this context.

Question 26. A young child of a laborer presents to the OPD with abdominal distension and a fatigued facial appearance. The child’s diet mainly consists of rice water, and laboratory findings show low serum protein and albumin levels. What is the most likely diagnosis?

A. Kwashiorkor

B. Marasmus

C. Indian childhood cirrhosis

D. Kawasaki disease

Correct answer: A

The clinical presentation of a swollen abdomen (edema), a tired face, and a diet primarily consisting of rice water (high in carbohydrates but low in protein) is indicative of Kwashiorkor.

This form of severe acute malnutrition is specifically caused by a deficiency in dietary protein despite some caloric intake. The low levels of serum albumin lead to decreased oncotic pressure, resulting in the characteristic pitting edema and abdominal distension. Marasmus (Option B) is a global deficiency of all calories, presenting as severe wasting or an "old man" appearance without significant edema. Indian childhood cirrhosis (Option C) typically involves liver failure in older children. Kawasaki disease (Option D) is an acute vasculitis characterized by high fever and a "strawberry tongue". Therefore, the combination of a high-carbohydrate/ low-protein diet and hypoalbuminemic edema confirms the diagnosis of Kwashiorkor.

Question 27. A patient presents with paresthesia of the hands and feet, generalized weakness, easy fatigability, pallor, and ataxia. Which vitamin deficiency best explains this combination of symptoms?

A. Vitamin B1

B. Vitamin B12

C. Vitamin B2

D. Vitamin B3

Correct answer: B

The clinical presentation combines hematological and neurological symptoms. Pallor and fatigue suggest anemia, while tingling (paresthesia), weakness, and ataxia (loss of coordination) indicate subacute combined degeneration of the spinal cord. This specific combination is the classic manifestation of Vitamin B12 deficiency. Vitamin B12 is essential for both red blood cell production and the maintenance of the myelin sheath in the nervous system. Vitamin B1 (thiamine) deficiency (Option A) causes beriberi, which involves peripheral neuropathy or heart failure but typically not ataxia and pallor together. Vitamin B2 (riboflavin) deficiency (Option C) presents with cheilosis and glossitis. Vitamin B3 (niacin) deficiency (Option D) causes pellagra, characterized by dermatitis and diarrhea. Because B12 deficiency is unique in causing both macrocytic anemia and progressive dorsal column neurological deficits, it is the most likely diagnosis.

Question 28. A 50-year-old man presents with episodic headaches, excessive sweating, and palpitations, and imaging shows a small mass in the left adrenal gland. Which investigation would best confirm the suspected diagnosis?

A. Urinary vanillyl mandelic acid (VMA) levels

B. Blood 5-hydroxyindoleacetic acid (5-HIAA)

lev- els

C. Urine myoglobin

D. Stool trypsin levels

Correct answer: A

The triad of recurrent headaches, sweating (diaphoresis), and palpitations in the presence of an adrenal mass is highly suggestive of a pheochromocytoma. Pheochromocytoma is a catecholamine-secreting tumor that typically arises from the adrenal medulla. Vanillylmandelic acid (VMA) is a major metabolic end-product of catecholamines (epinephrine and norepinephrine) excreted in the urine. Therefore, measuring 24-hour urinary VMA levels is a standard confirmatory test for this condition. Blood or urine 5-HIAA (Option B) is used to diagnose carcinoid syndrome, which presents with flushing and diarrhea. Urine myoglobin (Option C) is a marker for rhabdomyolysis. Stool trypsin (Option D) is used to evaluate pancreatic exocrine function in cystic fibrosis. Consequently, because VMA levels directly reflect the excessive catecholamine production characteristic of pheochromocytoma, this is the most appropriate test for confirmation.

Question 29. A patient with a history of bronchospasm is found to have a tumor in the ileum along with elevated urinary 5-hydroxyindoleacetic acid (5-HIAA) levels. What is the most likely diagnosis?

A. Carcinoid syndrome

B. 22 weeks

C. 24 weeks

D. 28 weeks

Correct answer: C

The Medical Termination of Pregnancy (Amendment) Act, 2021 (based on the 2020 bill), significantly expanded the legal window for abortion in India for certain vulnerable categories of women. Specifically, the upper gestational limit for MTP was increased from 20 to 24 weeks for survivors of sexual assault, rape, or incest, as well as for women with mental illness or physical disabilities. For a mentally ill rape victim, as described in the scenario, the 24-week limit applies. Option A (20 weeks) was the previous legal limit. Option B (22 weeks) and Option D (28 weeks) do not correspond to the specific legal thresholds defined in the act. Termination beyond 24 weeks is generally only permitted in cases of substantial fetal abnormalities as determined by a Medical Board. Therefore, the 24-week threshold is the correct legal standard for this patient.

Question 30. Adverse effect of Lamotrigine?

A. Diplopia

B. Tremors

C. Neutropenia

D. Rash

Correct answer: D

Lamotrigine is a commonly used antiepileptic drug, but it is notorious for causing dermatological side effects. A skin rash occurs in approximately 10% of patients. While many of these rashes are mild, there is a significant risk of progression to life-threatening hypersensitivity reactions, such as Stevens-Johnson Syndrome (SJS) or Toxic Epidermal Necrolysis (TEN). To minimize this risk, clinicians must adhere to a slow dose titration schedule. While diplopia (Option A) can occur as a dose-related neurotoxic effect, and tremors (Option B) or neutropenia (Option C) are rare idiosyncratic reactions, the "rash" is the most characteristic and clinically important adverse effect emphasized in medical examinations. Patients are advised to stop the medication immediately and seek medical attention if any skin lesions develop during the initiation phase. Therefore, monitoring for a rash is the highest safety priority for patients starting lamotrigine therapy.

Question 31. Which factor is the most likely cause of an acute asthma attack in a patient being treated for glaucoma who presents to the emergency department?

A. Timolol

B. Betaxolol

C. Latanoprost

D. Bimatoprost

Correct answer: A

Timolol is a non-selective beta-adrenergic antagonist commonly administered as topical eye drops to treat open-angle glaucoma by reducing aqueous humor production. Despite topical administration, it can be absorbed systemically through the nasolacrimal duct into the blood. In susceptible individuals, systemic beta-blockade triggers bronchoconstriction by antagonizing receptors in the lungs, leading to an acute asthma exacerbation. Betaxolol (Option B) is a cardioselective blocker and is much less likely to cause pulmonary side effects. Latanoprost (Option C) and Bimatoprost (Option D) are prostaglandin analogs that lower intraocular pressure without affecting the adrenergic system, and they do not cause asthma. Therefore, Timolol is the classic causative agent for medication-induced asthma in glaucoma patients. To reduce this risk, patients are taught punctal occlusion to minimize systemic absorption.

Question 32. Drug causing adverse effects on the renal tubules?

A. Cisplatin

B. Streptozocin

C. Methysergide

D. Cyclophosphamide

Correct answer: A

Cisplatin is a potent platinum-based chemotherapeutic agent used to treat various malignancies. Its most common dose-limiting toxicity is nephrotoxicity, specifically targeting the renal tubules. Cisplatin causes acute tubular necrosis (ATN) by inducing oxidative stress and direct cellular damage, often manifesting as electrolyte wasting (magnesium/calcium) and rising creatinine. Streptozocin (Option B) also has renal toxicities but is more specifically associated with islet cell damage. Methysergide (Option C) is linked to retroperitoneal fibrosis rather than direct tubular injury. Cyclophosphamide (Option D) is classically associated with hemorrhagic cystitis (bladder toxicity) caused by its metabolite acrolein, rather than primary tubular injury. To minimize cisplatin-induced renal damage, patients are typically pre-hydrated aggressively with saline and sometimes given mannitol or amifostine. Therefore, cisplatin is the definitive drug in this list known for damaging the renal tubules.

Question 33. Which adverse effect is considered the most clinically significant with tamoxifen therapy?

A. Cancer in the opposite breast

B. Osteoporosis

C. Endometrial hyperplasia

D. Infertility

Correct answer: C

Tamoxifen is a Selective Estrogen Receptor Modulator (SERM) primarily used in the treatment of ER-positive breast cancer. It acts as an estrogen antagonist in breast tissue but has an agonistic (estrogen-like) effect on the uterus. This stimulation of the uterine lining can lead to endometrial hyperplasia, which significantly increases the risk of developing endometrial cancer. Tamoxifen actually decreases the risk of cancer in the opposite breast (Option A). In postmenopausal women, tamoxifen helps prevent osteoporosis due to its bone-protective estrogenic effects (Option B). While it can affect hormonal cycles, "endometrial hyperplasia" is the most clinically significant and well-documented serious side effect requiring routine gynecological monitoring. Patients on tamoxifen are typically advised to report any abnormal vaginal bleeding immediately to rule out malignancy. Thus, the tissue-specific estrogenic action on the endometrium is its most concerning toxicity.

Question 34. A patient with known hypertension presents to the emergency department with palpitations and breathlessness and is diagnosed with hypertensive encephalopathy, with a blood pressure of 220/140 mmHg. What is the most appropriate initial drug to administer?

A. Phentolamine

B. Nicardipine

C. Mannitol

D. Prazosin

Correct answer: B

This patient is in a hypertensive emergency, defined by severely elevated blood pressure (220/140 mmHg) associated with acute end-organ damage (hypertensive encephalopathy). Immediate management requires controlled reduction of blood pressure using intravenous medications. Nicardipine, a dihydropyridine calcium channel blocker, is a preferred agent due to its predictable pharmacokinetics, ease of titration, and effectiveness in hypertensive crises. Phentolamine (Option A) is specifically indicated for catecholamine-mediated crises, such as pheochromocytoma. Mannitol (Option C) is an osmotic diuretic used to lower intracranial pressure but is not a primary antihypertensive. Prazosin (Option D) is an oral alpha-blocker used for chronic management, not for the acute parenteral stabilization required in an emergency. The goal in these cases is typically to reduce the mean arterial pressure by no more than 25% within the first hour to prevent cerebral ischemia.

Question 35. Which drug has been shown to be most effective in improving survival in patients with chronic stable angina who also exhibit features of heart failure?

A. Nifedipine

B. Digoxin

C. Lisinopril

D. Torsemide

Correct answer: C

For patients with chronic heart failure with reduced ejection fraction (HFrEF), ACE inhibitors like Lisinopril are a cornerstone of therapy. They work by blocking the renin-angiotensin-aldosterone system, reducing ventricular remodeling, and lowering afterload. Lisinopril has a proven mortality benefit, meaning it effectively improves the lifespan of these patients. Nifedipine (Option A) is a calcium channel blocker used for angina but can actually worsen outcomes in systolic heart failure. Digoxin (Option B) can improve symptoms and reduce hospitalizations but has never been shown to decrease overall mortality. Torsemide (Option D) is a loop diuretic essential for managing fluid overload; while it improves quality of life, it does not provide a mortality benefit like ACE inhibitors or beta-blockers. Therefore, because Lisinopril directly targets the disease process to extend life, it is the most effective choice among the options provided.

Question 36. Which drug is most effective for reducing uric acid levels to prevent renal injury in patients

with tumor lysis syndrome?

A. Furosemide

B. Rasburicase

C. Corticosteroids

D. Febuxostat

Correct answer: B

Tumor Lysis Syndrome (TLS) is an oncological emergency characterized by the massive release of intracellular contents, including nucleic acids which are metabolized into uric acid. Severe hyperuricemia can cause acute urate nephropathy and renal failure. Rasburicase is a recombinant urate oxidase enzyme that directly converts uric acid into allantoin, a much more soluble metabolite that is easily excreted by the kidneys. It acts rapidly to lower existing high levels of uric acid. Febuxostat (Option D) and Allopurinol are xanthine oxidase inhibitors that prevent the formation of new uric acid but do not clear what is already in the blood. Furosemide (Option A) is a diuretic used to maintain urine flow but doesn't target uric acid. Corticosteroids (Option C) are part of chemotherapy but not a primary treatment for TLS hyperuricemia. Thus, Rasburicase is the most potent and direct agent for managing established hyperuricemia in TLS.

FORENSIC MEDICINE

Question 37. In a patient presenting with a blister on the hand and axillary lymphadenopathy, which specific history-related questions should be asked based on the findings of the clinical examination?

A. History of exposure to rat

B. History of exposure to cat

C. History of similar complaint in family members

D. History of tick bite

Correct answer: B

The combination of a primary inoculating lesion (hand blister) and regional lymphadenopathy (axillary) is highly suggestive of Cat Scratch Disease (CSD). CSD is caused by the bacterium Bartonella henselae, which is typically transmitted to humans through the scratch or bite of an infected cat, particularly kittens. Asking about "exposure to cats" is the most specific and relevant history to confirm this clinical suspicion. Exposure to rats (Option A) would suggest conditions like rat-bite fever or leptospirosis, which present differently. Family history (Option C) is less relevant for this acute infectious process. A tick bite (Option D) could suggest Lyme disease or Rickettsial infections, but the classic presentation of CSD focuses on the regional nodes draining a feline-induced skin lesion. Therefore, identifying contact with a cat provides

the crucial epidemiological link for the diagnosis.

Question 38. A 23-year-old farm worker from a remote village presents 8 hours after a snake bite that occurred early in the morning. He complains of headache, blurred vision, perioral tingling, dizziness, vertigo, and has had repeated vomiting since the bite. On examination, he shows respiratory depression and bradycardia (heart rate < 50/ min). The bite site has mild swelling and blistering without bleeding. He has already received 10 vials of antivenom. What should be the next step in management for this patient?

A. Check the blood coagulation profile

B. Neostigmine with atropine

C. Epinephrine injection

D. I.V hydrocortisone

Correct answer: B

The patient is displaying classic signs of neurotoxic snake envenomation, likely from a cobra or krait bite. Symptoms such as blurred vision (ptis), respiratory depression, and tingling are hallmark neurological effects. While Polyvalent Anti-Snake Venom (ASV) has been started, the presence of respiratory distress requires adjunct therapy. Neostigmine, an acetylcholinesterase inhibitor, can transiently improve neuromuscular transmission in neurotoxic envenomation (particularly cobra bites). It must always be given with Atropine to block the muscarinic side effects, such as bradycardia and increased secretions. Checking the coagulation profile (Option A) is more relevant for vasculotoxic (Viper) bites where bleeding is prominent. Epinephrine (Option C) and hydrocortisone (Option D) are used to manage ASV-induced anaphylaxis, but not for the primary neurotoxic symptoms. Therefore, the neostigmine-atropine challenge is the critical next step to potentially reverse muscle paralysis and stabilize the patient.

Question 39. An internal medicine consultant managing a patient with chronic renal disease on hemodialysis provides appropriate dietary, fluid, and treatment advice with regular monitoring. Despite this, the patient independently consumes ayurvedic medications and intermittently fails to follow medical instructions without informing the doctor, leading to clinical deterioration and respiratory distress. The patient’s attendant later

files a negligence case against the doctor. Which factor would serve as a valid legal defense for the doctor in court?

A. Vicarious liability

B. Res Ipsa loquitur

C. Therapeutic misadventure

D. Contributory negligence

Correct answer: D

Contributory negligence occurs when the patient's own failure to exercise reasonable care for their health contributes directly to their injury or clinical deterioration. In this scenario, the doctor provided standard care, but the patient disregarded medical advice and took unauthorized supplements without informing the physician. This non-compliance is a strong defense for the doctor against a malpractice claim. Vicarious liability (Option A) refers to an employer being responsible for an employee's actions. Res Ipsa loquitur (Option B) means "the thing speaks for itself," used when negligence is obvious (e.g., a sponge left in a patient). Therapeutic misadventure (Option C) refers to an injury resulting from a recognized complication of a correctly performed procedure. Since the patient's intentional disregard for instructions caused the worsening condition, contributory negligence is the correct legal defense.

Question 40. What is the term used to denote the number of maternal deaths per 100,000 live births?

A. Maternal mortality rate

B. Maternal mortality ratio

C. Infant mortality rate

D. Perinatal mortality rate

Correct answer: B

It is a common error to use the terms "rate" and "ratio" interchangeably in maternal health. The Maternal Mortality Ratio (MMR) specifically measures the number of maternal deaths per 100,000 live births. This measure reflects the obstetric risk associated with pregnancy. The Maternal Mortality Rate (Option A), in contrast, measures deaths per 1,000 women of reproductive age, reflecting the risk of death in the general female population. The Infant Mortality Rate (Option C) measures deaths of infants under 1 year per 1,000 live births. The Perinatal Mortality Rate (Option D) includes late fetal deaths and early neonatal deaths. Because the denominator "live births" is used to define the obstetric risk, the "ratio" is the correct statistical term. Understanding this distinction is vital for accurate public health reporting and international comparisons.

Question 41. Which of the following statements is not

applicable
or
permissible
during
cross-
examination in a court of law?

A. Witness is examined by the defense lawyer

B. Leading questions are not allowed

C. Objective of cross-examination is to weaken
case of opponent

D. There is no time limit to cross examination

Correct answer: B

In a legal trial, cross-examination is the stage where the opposing party’s lawyer questions the witness. A key feature of cross-examination is that leading questions ARE allowed and are frequently used to challenge the witness's credibility or to elicit specific answers. This distinguishes it from the "examination-in-chief," where leading questions are strictly prohibited. The witness is indeed examined by the defense (or opposing) lawyer (Option A). The primary objective is to weaken the opponent's case or to reveal inconsistencies in the testimony (Option C). While the judge has the authority to prevent irrelevant or repetitive questioning, there is generally no strict "time limit" fixed by law for this process (Option D). Therefore, statement B is incorrect because leading questions are a fundamental tool during cross-examination.

Question 42. A 28-year-old man presents in a disoriented
state with bradycardia (heart rate 50/min),
hypotension (80/60 mmHg), marked respiratory
depression
(7
breaths/min),
hypothermia
(95°F), and pinpoint pupils. What is the most
likely diagnosis?

A. Benzodiazepine overdose

B. Cocaine intoxication

C. Opioid withdrawal

D. Opioid intoxication

Correct answer: D

The patient presents with the classic "opioid toxidrome" triad: CNS depression (disorientation), respiratory depression (7 breaths/min), and pinpoint pupils (miosis). Other supporting clinical

signs include bradycardia (50 bpm), hypotension (80/60 mmHg), and hypothermia (95 F). Benzodiazepine overdose (Option A) also causes CNS and respiratory depression but typically results in normal or dilated pupils. Cocaine intoxication (Option B) is a sympathomimetic syndrome characterized by tachycardia, hypertension, and dilated pupils (mydriasis). Opioid withdrawal (Option C) presents with symptoms opposite to intoxication, such as agitation, tachycardia, diarrhea, and dilated pupils. The presence of pinpoint pupils is a highly specific marker for opioid toxicity, necessitating immediate airway support and the administration of Naloxone. Therefore, opioid intoxication is the definitive diagnosis for this clinical presentation.

Question 43. A farmer presents to the emergency department with diarrhea, sweating, excessive lacrimation, and salivation. Regarding the management of this condition, which of the following statements is incorrect?

A. Carbamates bind to acetylcholinesterase irreversibly.

B. Atropine is used as an antidote for OP poisoning

C. Pralidoxime has a role in reversing the enzyme in carbamate poisoning

D. Succinylcholine use is avoided in rapid sequence intubation

Correct answer: A

The patient’s symptoms are characteristic of a cholinergic crisis caused by organophosphate (OP) or carbamate poisoning. A critical pharmacological difference is that carbamates bind reversibly to the acetylcholinesterase enzyme, which typically results in a shorter duration of toxicity. In contrast, organophosphates bind irreversibly through a process called "aging." Atropine is the essential antidote for both to block muscarinic symptoms (Option B). Pralidoxime (Option C) is generally considered ineffective or controversial in carbamate poisoning because the bond is already reversible, and it is primarily used for OP poisoning. Succinylcholine (Option D) is avoided because its metabolism depends on pseudocholinesterase, which is inhibited by these poisons, leading to prolonged muscle paralysis. Therefore, the statement claiming carbamates bind irreversibly is incorrect.

MICROBIOLOGY

Question 44. A woman presents to the gynecology OPD with foul-smelling frothy vaginal discharge, severe itching, and a strawberry cervix on examination. Which statement regarding the causative

organism is incorrect?

A. It exists in cyst and trophozoite form

B. It is an obligate parasite

C. The gold standard for diagnosis is culture on
CPLM or PEM

D. The treatment of choice is metronidazole

Correct answer: A

The clinical presentation of frothy vaginal discharge and a "strawberry cervix" is pathognomonic for trichomoniasis, caused by the flagellated protozoan Trichomonas vaginalis. A key biological characteristic of T. vaginalis is that it exists ONLY in the trophozoite form and does not have a cyst stage. It is an obligate parasite (Option B) that cannot survive long outside the human body. The gold standard for definitive diagnosis remains culture on specialized media such as Diamond's, CPLM, or PEM (Option C). The treatment of choice is indeed Metronidazole (Option D), and it is essential to treat sexual partners simultaneously. Therefore, the statement regarding a cyst form is incorrect as it applies to other protozoa like Entamoeba or Giardia, but not to Trichomonas.

Question 45. Which of the following methods is utilized for sterilizing a glass petri dish?

A. Autoclaving at 121 degrees Celsius for 30-60
minutes

B. Hot air oven at 160 degrees Celsius for 120
min- utes or less

C. Flash autoclaving at 134 degrees Celsius for
3 minutes

D. Hot air oven at 121 degrees Celsius for 30-60
minutes

Correct answer: B

Sterilization of glassware, such as petri dishes and pipettes, is most effectively achieved using dry heat in a Hot Air Oven. The standard sterilization cycle for glassware is 160 degrees Celsius for 120 minutes (2 hours). Higher temperatures like 170 or 180 degrees Celsius can be used for shorter durations. Autoclaving (Option A), which uses moist heat, is generally used for surgical instruments and media but is less ideal for dry glassware as it leaves them wet. Flash autoclaving (Option C) is an emergency method for unwrapped instruments. Option D is incorrect as 121 degrees Celsius in a hot air oven is insufficient for sterilization. Dry heat kills organisms by oxidative damage and protein coagulation. Therefore, the hot air oven at the specified temperature and time is the correct microbiological protocol for petri dishes.

Question 46. A 38-year-old person with a history of

intravenous drug abuse presents with malaise, fatigue, rigors, and a pan-systolic murmur best heard at the left sternal border. Based on these clinical features and risk factors, which organism is most likely to be isolated on blood culture?

A. Streptococcus sanguis

B. Enterococcus faecium

C. Coxiella burnetii

D. Staphylococcus aureus

Correct answer: D

The patient presents with signs of infective endocarditis (IE), specifically right-sided involvement as indicated by the pan-systolic murmur at the left sternal border (tricuspid regurgitation). Intravenous drug users (IVDU) have a high risk of developing IE, and Staphylococcus aureus is the most common causative organism in this population, accounting for over 50% of cases. It typically results in an acute, destructive form of the disease. Streptococcus sanguis (Option A) is a common cause of subacute IE but is usually associated with dental procedures. Enterococcus (Option B) is often linked to genitourinary manipulations. Coxiella burnetii (Option C) is the cause of Q fever endocarditis, which is much rarer. Given the specific lifestyle risk factor and the acute presentation (rigors), Staphylococcus aureus is the statistically and clinically most probable pathogen.

Question 47. A 45-year-old patient with chronic cough, weight loss, and night sweats is suspected to have tuberculosis. A sputum sample is cultured on Löwenstein–Jensen (LJ) medium. If the organism grows, what staining property would it characteristically exhibit?

A. Gram positive

B. Gram negative

C. Acid fast

D. Non-acid fast

Correct answer: C

The patient's clinical symptoms (chronic cough, weight loss, night sweats) are highly suggestive of pulmonary tuberculosis caused by Mycobacterium tuberculosis. M. tuberculosis is characterized by its unique waxy cell wall containing high concentrations of mycolic acids. This structure makes the organism resistant to traditional Gram staining (Options A and B). Instead,

it is identified using Acid-Fast staining (such as the Ziehl-Neelsen stain), where the bacteria retain the primary carbol fuchsin dye even after washing with acid-alcohol. Growth on Löwenstein-Jensen (LJ) medium, which shows rough, tough, and buff-colored colonies, confirms the diagnosis. Therefore, "acid fast" is the definitive staining characteristic for these mycobacteria. This property is essential for the rapid identification of TB in sputum samples.

Question 48. Which cellular component is exclusively present in gram-negative bacteria and not found in gram-positive organisms?

A. Capsule

B. Peptidoglycan

C. Lipopolysaccharide

D. Flagella

Correct answer: C

Gram-negative bacteria possess a complex cell envelope that includes an outer membrane. Lipopolysaccharide (LPS), also known as endotoxin, is a major component located exclusively in the outer leaflet of this outer membrane. It is not found in gram-positive bacteria. Capsules (Option A) and Flagella (Option D) are found in both gram-positive and gram-negative species. Peptidoglycan (Option B) is a core component of the cell wall for both types, although gram-positive bacteria have a significantly thicker layer than gram-negative bacteria. LPS is clinically significant because its release into the bloodstream can trigger a massive immune response, leading to endotoxic shock and systemic inflammation. Therefore, lipopolysaccharide is the unique biochemical marker of the gram-negative cell wall.

Question 49. A patient presents to the medicine OPD with acute vomiting shortly after consuming fried rice. Based on this clinical presentation and food history, which organism is most likely responsible?

A. Clostridium perfringens

B. Bacillus cereus

C. Staphylococcus aureus

D. Bacillus anthracis

Correct answer: B

The association between consuming "fried rice" and subsequent rapid-onset vomiting is a classic clinical clue for food poisoning caused by Bacillus cereus. B. cereus is a spore-forming bacterium often found in rice. If rice is cooked and then left at room temperature, the spores can germinate and produce a heat-stable emetic toxin. Reheating (frying) the rice does not inactivate this toxin, leading to vomiting within 1 to 6 hours of ingestion. Clostridium

perfringens (Option A) and the diarrheal form of B. cereus typically present with diarrhea and a longer incubation period. Staphylococcus aureus (Option C) also causes rapid-onset vomiting but is usually linked to dairy products or meats. Bacillus anthracis (Option D) causes anthrax and is not a common cause of standard food poisoning. Therefore, Bacillus cereus is the most likely pathogen given the specific rice-based history.

Question 50. A 21-year-old woman is referred from a PHC to the emergency department with altered sensorium, high-grade fever, severe lower abdominal pain, and foul-smelling vaginal discharge. Her friend reports a history of an unsafe abortion performed one week ago. On examination, there is marked uterine tenderness and features of septic shock with blood pressure 80/60 mmHg, pulse 140/min, and respiratory rate 36/min. Blood culture grows a gram-positive aerobic organism. Which pathogen is most likely responsible for this clinical presentation?

A. Clostridium perfringens

B. Streptococcus pyogenes

C. Clostridium welchii

D. Escherichia coli

Correct answer: B

The patient presents with septic abortion, a severe intrauterine infection typically following instrumentation or unsafe procedures. She is in septic shock with multi-organ signs. The critical diagnostic clue provided is the blood culture result: a gram-positive, aerobic bacterium. Streptococcus pyogenes (Group A Strep) is a classic aerobic pathogen responsible for post-abortal and puerperal sepsis. Clostridium perfringens (Option A) and Clostridium welchii (Option C) are also common in septic abortions but are strictly anaerobic, which contradicts the culture result. Escherichia coli (Option D) is a major cause of sepsis but is a gram-negative rod. S. pyogenes can cause a rapidly progressing toxic shock-like syndrome with high mortality. Therefore, given the specific microbiology provided, Streptococcus pyogenes is the definitive answer.

Question 51. A 14-year-old girl presents with cyclical lower abdominal pain and has not yet attained menarche. On pelvic examination, a hypogastric mass along with a bluish bulge is noted. What is the most likely underlying cause of this

presentation?

A. Bartholin

B. Transverse vaginal septum

C. Imperforate hymen

D. Endometrioma

Correct answer: C

The clinical presentation of primary amenorrhea (no menarche) and cyclic abdominal pain in an adolescent girl is highly suggestive of an outflow tract obstruction. The findings of a hypogastric lump (hematometra) and a bluish swelling at the introitus are characteristic of an imperforate hymen. The blue color results from the dark, old blood trapped behind the hymenal membrane (hematocolpos) reflecting through it. A transverse vaginal septum (Option B) can also cause primary amenorrhea and cyclic pain but would not show the distinct bulging bluish membrane at the vulva. Bartholin cyst (Option A) presents as a vulvar mass but not with amenorrhea. Endometrioma (Option D) is common in older women and would not explain primary amenorrhea. Treatment involves a simple cruciate incision of the hymen to allow the trapped blood to drain. Therefore, the physical findings confirm imperforate hymen as the diagnosis.

Question 52. An 18-year-old previously healthy girl presents with low-grade fever, progressive weight loss, abdominal pain, and amenorrhea for six months. Clinical examination reveals a left-sided pelvic mass along with ascites. What is the most likely diagnosis?

A. Submucous fibroid

B. Ovarian malignancy

C. Ectopic pregnancy

D. Genital tuberculosis

Correct answer: D

In high-prevalence regions, Genital Tuberculosis is a common cause of secondary amenorrhea and infertility in young women. The presentation of systemic symptoms (low-grade fever, weight loss) and local pelvic signs (abdominal pain, pelvic mass, and ascites) is characteristic. The infection often involves the fallopian tubes and peritoneum, leading to the formation of masses and ascitic fluid. Ovarian malignancy (Option B) can present with a mass and ascites but is less common than TB in this age group and doesn't typically explain the systemic fever. A submucous fibroid (Option A) would cause heavy menstrual bleeding, not amenorrhea. Ectopic pregnancy (Option C) would present as an acute crisis or with high hCG levels, not a chronic six-month illness. Therefore, given the constitutional symptoms and pelvic findings, genital tuberculosis is the most probable diagnosis.

Question 53. What is the most appropriate next step in management for a 36-week pregnant woman with a prosthetic mitral valve, currently receiving warfarin therapy and having an INR of 3?

A. Stop warfarin and start LMWH

B. Stop warfarin and start aspirin

C. Continue warfarin

D. Stop warfarin, start LMWH and aspirin

Correct answer: A

Warfarin is a highly effective anticoagulant for prosthetic heart valves but is associated with a high risk of maternal and fetal bleeding during delivery. To minimize this risk, clinical guidelines recommend stopping Warfarin at approximately 36 weeks of gestation and switching to a shorter-acting anticoagulant, typically Low Molecular Weight Heparin (LMWH) or unfrequented heparin. This allows for safer management of labor and easier reversal if needed. Continuing Warfarin (Option C) during delivery is contraindicated due to intracranial hemorrhage risks for the neonate and maternal hemorrhage. Aspirin alone (Option B) is insufficient to prevent valve thrombosis. While some protocols add aspirin to LMWH (Option D), the primary and most essential next step at 36 weeks is the transition from oral warfarin to injectable heparin. Therefore, starting LMWH is the standard obstetric management for this patient to ensure a safe delivery.

Question 54. Which fungal infection is most commonly found involving the maxillary sinus?

A. Blastomycosis

B. Aspergillosis

C. Candidiasis

D. Histoplasmosis

Correct answer: B

The maxillary sinus is the most common site for fungal rhinosinusitis. Among the listed options, Aspergillosis (specifically caused by Aspergillus fumigatus) is the most frequent fungal infection identified in this region. It can manifest in several forms: as a non-invasive "fungal ball" (mycetoma) in immunocompetent individuals, as allergic fungal sinusitis, or as devastating invasive disease in immuno compromised patients. Blastomycosis (Option A), Histoplasmosis (Option D), and Candidiasis (Option C) are much less common as primary infections of the paranasal sinuses. Radiographically, aspergillosis often appears as a radio-opaque mass with characteristic metallic or punctate calcifications within the sinus. Treatment ranges from simple surgical drainage for mycetomas to systemic antifungal therapy for invasive cases.

Therefore, Aspergillus species are the predominant fungal pathogens associated with maxillary sinus involvement.

Question 55. At what age is the first dose of hepatitis B vaccine given?

A. Birth

B. 6 weeks

C. 10 weeks

D. 6 months

Correct answer: A

According to the National Immunization Schedule (NIS) in India and WHO recommendations, the first dose of the Hepatitis B vaccine should be administered as a "birth dose." Ideally, this should occur as soon as possible after delivery, within 24 hours. This birth dose is critical for preventing perinatal transmission from mother to child. Subsequent doses are typically given at 6, 10, and 14 weeks (Options B and C) as part of the pentavalent vaccine. A dose at 6 months (Option D) is not part of the standard primary series. The birth dose provides early protection and significantly reduces the risk of chronic infection in the infant. Therefore, "birth" is the correct and medically essential age for initiating hepatitis B immunization.

Question 56. Which vaccines are typically administered to newborns?

A. Pentavalent, MR, HIB

B. BCG, OPV, MR

C. BCG, OPV, Hepatitis B

D. BCG, IP, Hepatitis B

Correct answer: C

The "birth dose" regimen in India’s National Immunization Schedule consists of exactly three vaccines administered immediately after birth. These are BCG (Bacillus Calmette-Guérin) to protect against severe forms of tuberculosis, OPV (zero dose of Oral Polio Vaccine), and Hepatitis B (birth dose). Pentavalent and Hib (Option A) are initiated at 6 weeks. MR (measles-rubella, Options A and B) is given at 9 months. IPV (inactivated polio vaccine, Option D) is administered at 6 and 14 weeks. This combination of three vaccines at birth provides foundational immunity against TB, Polio, and Hepatitis B before the infant leaves the hospital. Therefore, Option C represents the complete and accurate standard of care for neonatal immunization.

Question 57. Cat scratch disease is caused by?

A. Bartonella henselae

B. Bartonella quintana

C. Bartonella bacilliformis

D. Borrelia burgdorferi

Correct answer: A

Cat scratch disease (CSD) is an infectious condition characterized by regional lymphadenopathy following a cat scratch or bite. It is caused specifically by Bartonella henselae, a small, gram-negative intracellular bacterium. Bartonella quintana (Option B) is the cause of trench fever, typically transmitted by lice. Bartonella bacilliformis (Option C) causes Carrion's disease (Oroya fever/Verruga peruana). Borrelia burgdorferi (Option D) is the causative agent of Lyme disease, which is transmitted by ticks. CSD is a self-limiting illness in most immunocompetent individuals, though it can cause more severe systemic or neurological disease in immuno compromised patients. Diagnosis is often made clinically and supported by serology or PCR. Therefore, B. henselae is the definitive causative organism associated with feline transmission and regional adenitis.

Question 58. Which of the following microorganisms cannot be grown on artificial culture media?

A. Mycobacterium leprae

B. Staphylococcus aureus

C. Mycobacterium tuberculosis

D. Streptococcus pneumoniae

Correct answer: A

Mycobacterium leprae, the causative agent of leprosy, is an obligate intracellular pathogen. A hallmark of this organism is its total inability to grow on any artificial or cell-free culture media. For experimental purposes, it is cultivated in animal models, such as the footpads of mice or the nine-banded armadillo. Staphylococcus aureus (Option B) grows easily on standard media like blood agar. Mycobacterium tuberculosis (Option C) is slow-growing but cultivable on Löwenstein-Jensen (LJ) media. Streptococcus pneumoniae (Option D) is fastidious but grows on enriched media. The failure of M. leprae to grow in vitro is attributed to its massive gene decay, having lost many essential metabolic pathways. Therefore, it remains the classic example of a bacterium that cannot be cultured using standard microbiological techniques.

PSM

Question 59. According to NACO guidelines, when an HIV-positive patient receives counseling and screening for tuberculosis at an ICTC clinic, which level of prevention is being implemented?

A. Primordial

B. Primary

C. Secondary

D. Primary & secondary

Correct answer: D

According to NACO guidelines, HIV care includes both preventive counseling and active screening for opportunistic infections like tuberculosis (TB).

Primary prevention is represented by counseling, where the patient is educated about TB symptoms, transmission, adherence to treatment, and risk reduction. Since HIV patients are at high risk of developing TB, this counseling helps prevent occurrence or worsening of disease, thus falling under primary prevention.

Secondary prevention is represented by screening for TB, which aims at early detection and prompt treatment. Identifying TB at an early stage in HIV-positive individuals reduces complications, transmission, and mortality.

Why other options are incomplete:

(A)

Primordial → Deals with prevention of risk factors before they appear

(B)

Primary → Only covers counseling, not screening

(C)

Secondary → Only covers screening, ignores counseling component

Question 60. When a dataset shows wide variation, skewness, or contains outliers, which measure of central tendency is most appropriate to use?

A. Mean

B. Mode

C. Median

D. Standard deviation

Correct answer: C

The choice of central tendency depends on the distribution of the data. The Mean (Option A) is the most common measure but is highly sensitive to outliers and skewed data; even a single extreme value can significantly pull the mean away from the center of the majority of the data. The Median is the "middle" value when data is ordered. It is not affected by extreme outliers or skewness, making it the most robust and preferred measure of central tendency for non-normally distributed data. The Mode (Option B) is the most frequently occurring value and is useful for categorical data but less helpful for interpreting the "center" of continuous numerical data. Standard deviation (Option D) is a measure of dispersion, not central tendency. Therefore, for skewed medical or demographic data, the median provides the most accurate

representative "center."

Question 61. What does the provided population pyramid indicate, with the exception of?

A. Developing countries

B. Developed countries

C. More young population

D. Increasing population

Correct answer: B

The population pyramid shown features a broad base that rapidly tapers toward a narrow apex. This "expansive" shape indicates high birth rates and high death rates. Such pyramids are characteristic of developing countries (Option A) where there is a "more young population" (Option C) and the total population is rapidly increasing (Option D). In contrast, developed countries (Option B) typically have a "constrictive" or "stationary" pyramid with a narrower base (low birth rates) and a more vertical shape, representing an aging population and low growth. Because the visual data clearly represents a young, growing, high-fertility demographic typical of less developed regions, the "developed countries" label is the incorrect description and thus the correct "except" choice for this question.

Question 62. During a routine health check-up camp in a rural community, a 30-year-old woman presents with symptoms of fever and body aches. Where would she most likely seek initial medical assistance?

A. Primary health center (PHC)

B. Community health center (CHC)

C. Sub-centre

D. District hospital

Correct answer: C

In the Indian rural healthcare system, the Sub-centre is the first and most accessible point of contact between the community and the healthcare system. For minor ailments like fever and body aches, a patient would typically visit the local sub-centre staffed by an ANM (Auxiliary Nurse Midwife) and an MPW (Multi-Purpose Worker). If the condition is more severe or requires a doctor's intervention, she would then be referred to the Primary Health Center (PHC, Option A), which serves as the next level. The Community Health Center (CHC, Option B) is a secondary level facility for a larger population, and the District Hospital (Option D) is for tertiary-level specialist care. Therefore, based on the three-tier rural health hierarchy, the sub-centre is the definitive "initial" seek-point for primary care.

Question 63. Which statement regarding a primary healthcare center (PHC) is incorrect?

A. There is 1 PHC per 30,000 population in plain areas.

B. Type A PHC conducts fewer than 20 deliveries per month.

C. Provides maternal and child health care, family planning, and MTP.

D. Is the first referral unit.

Correct answer: D

The statement that a PHC is the first referral unit (FRU) is incorrect. In India’s public health infrastructure, the Community Health Center (CHC) is designated as the First Referral Unit, as it provides specialist services, blood storage, and emergency obstetric care that a PHC cannot. All other statements are true: there is indeed 1 PHC per 30,000 population in plain areas (and 1 per 20,000 in hilly/tribal areas) (Option A). PHCs are categorized by their delivery load, with Type A centers conducting fewer than 20 deliveries per month (Option B). PHCs serve as the primary hub for maternal and child health (MCH), family planning, and Medical Termination of Pregnancy (MTP) services (Option C). Therefore, the designation of "First Referral Unit" applies to the CHC level, not the PHC.

Question 64. In a community, an awareness session on hand-washing was organized. The appropriate order of events in this session is:

A. Awareness > interest > adoption > evaluation

B. Awareness > interest > evaluation > adoption

C. Evaluation > adoption > awareness > interest

D. Adoption > awareness > interest > evaluation

Correct answer: B

The question refers to the five stages of the "Adoption Process" model in health education and behavioral change. The stages represent the mental process an individual goes through from first hearing about an innovation to final adoption.

The correct sequential order is:

1.

Awareness: Learning that the practice (e.g., hand-washing) exists.

2.

Interest: Seeking more information about it.

3.

Evaluation: Weighing the advantages and disadvantages for oneself.

4.

Trial: Trying it on a small scale.

5.

Adoption: Incorporating the practice into regular behavior.

Option B correctly identifies the first three stages followed by the final adoption. Option A incorrectly places evaluation at the end. Options C and D are logically incorrect as adoption cannot occur before awareness or interest. Therefore, the mental process must move from cognitive awareness to internal evaluation before final behavioral change.

Question 65. A 35-year-old man becomes unable to walk after an accident and subsequently loses his job because of this disability. How should his unemployment be classified?

A. Disability

B. Handicap

C. Impairment

D. Disease/disorder

Correct answer: B

According to the WHO International Classification of Impairments, Disabilities, and Handicaps (ICIDH), these terms have specific hierarchical meanings. An Impairment (Option C) is a structural or functional abnormality (e.g., a broken leg). A Disability (Option A) is the resulting restriction in the ability to perform an activity (e.g., "unable to walk"). A Handicap is the social or occupational disadvantage resulting from that impairment or disability that limits the fulfillment of a normal role. In this scenario, the man's "unemployment" is a direct social disadvantage caused by his inability to walk; therefore, the loss of his job is classified as a handicap. Disease (Option D) is the underlying pathological condition. Therefore, because unemployment is an external, societal consequence, "handicap" is the correct forensic and public health classification.

Question 66. Which type of graphical representation is most appropriate for demonstrating trends and variations over time in the incidence of diarrheal disease within a defined geographic area?

A. Line graph

B. Histogram

C. Ogive

D. Tree diagram

Correct answer: A

A Line Graph is the best graphical tool for illustrating trends or changes over time for a single variable, such as the number of cases of diarrheal disease. By plotting the frequency of disease on the Y-axis against time (days, months, or years) on the X-axis, the line graph clearly shows seasonal patterns, outbreaks, or long-term declines resulting from public health interventions. A Histogram (Option B) is used to show the frequency distribution of a continuous variable at a single point in time but is less effective for showing a temporal trend. An Ogive (Option C) is a cumulative frequency graph. A Tree diagram (Option D) is used to show hierarchical relationships or decision-making paths. Therefore, because the question asks for "changes in occurrence," the line graph is the standard epidemiological choice for time-series data.

Question 67. What is the primary factor responsible for the demographic burden?

A. Decreased old age dependency ratio

B. Increased young age dependency ratio

C. Decreased young age dependency ratio

D. Increased old age dependency ratio

Correct answer: D

The "demographic burden" typically refers to the socio-economic strain placed on the working-age population (usually 15-64 years) to support the non-working segments. In modern demographic transitions, the most significant and growing factor is the increased old age dependency ratio. As life expectancy increases and birth rates decline (demographic aging), there are more elderly individuals requiring healthcare and pensions relative to the fewer workers available to fund these systems. While an increased young age dependency (Option B) also creates a burden, it is often seen as a temporary "investment" in future productivity. Decreased dependency ratios (Options A and C) actually represent a "demographic dividend" or relief rather than a burden. Therefore, the long-term structural burden associated with an aging population is the primary concern described by this demographic term.

Question 68. Which demographic indicator is used to compare life expectancy between two different countries?

A. QALY

B. DALY

C. HDI

D. HPI

Correct answer: C

The Human Development Index (HDI) is a composite statistical tool used to rank countries by level of human development, serving as a key indicator for comparing life expectancy across different nations. It encompasses three major dimensions: a long and healthy life (measured by life expectancy at birth), knowledge (mean and expected years of schooling), and a decent standard of living (GNI per capita). In contrast, Quality-Adjusted Life Years (QALY) (Option A) measures the value of health outcomes by combining quantity and quality of life. Disability-Adjusted Life Years (DALY) (Option B) quantifies the overall burden of disease, representing years lost due to ill-health or early death. The Human Poverty Index (HPI) (Option D) focuses specifically on deprivations rather than general development or expectancy. Therefore, HDI is the standard demographic measure used internationally to benchmark and compare the longevity and life expectancy of populations between distinct countries.

Question 69. What is used to clean up blood spills in the operation theater?

A. Chlorine compound

B. Phenolic compound

C. Quaternary ammonium compounds

D. Alcoholic compounds

Correct answer: A

Effective decontamination of blood spills in high-risk areas like operation theaters is critical for preventing the transmission of bloodborne pathogens such as HIV and Hepatitis. Sodium hypochlorite, a chlorine compound, is the globally recommended disinfectant for this purpose. For large spills, a 1% (10,000 ppm) concentration is typically used to ensure complete inactivation of infectious agents. Phenolic compounds (Option B) are less effective against some viruses and are generally used for surface disinfection of walls or floors. Quaternary ammonium compounds (Option C) are low-level disinfectants and are not suitable for blood spills. Alcoholic compounds (Option D), while useful for skin antisepsis, evaporate too quickly to provide the necessary contact time for organic matter like blood. Therefore, due to its potent virucidal properties and ability to neutralize organic biohazards, a chlorine-based compound is the gold standard for managing blood spills in clinical settings.

Question 70. Which of the following healthcare personnel does not function at the village level?

A. ANM

B. AWW

C. TBA

D. ASHA

Correct answer: A

The Indian public health system utilizes various workers to deliver services at the grassroots

level. The Auxiliary Nurse Midwife (ANM) is a key provider who primarily operates at the Sub-centre level, serving as a link between the village and the Primary Health Center. While she makes village visits, her official headquarters and primary work location are the Sub-centre, not the village itself. In contrast, the Anganwadi Worker (AWW) (Option B) is a village-level worker under the ICDS program focusing on nutrition. The Trained Birth Attendant (TBA) (Option C) and Accredited Social Health Activist (ASHA) (Option D) are strictly village-based workers who live and work within the community they serve. ASHAs, in particular, are the face of the National Health Mission at the doorstep of the rural population. Therefore, because the ANM represents the first formal link in the facility-based hierarchy rather than community-based living, she is not classified as village-level.

Question 71. Which term most accurately refers to the social conditions or factors that play a role in the development and causation of diseases?

A. Sociology

B. Social pathology

C. Society

D. Community

Correct answer: B

The term "social pathology" refers specifically to the study of social factors, such as poverty, poor housing, and lack of education, that act as determinants or contributors to the occurrence and spread of diseases in a population. It views these societal ills as "pathological" states that directly impact public health. Sociology (Option A) is the broad scientific study of human society and social behavior but is not limited to disease causation. Society (Option C) and Community (Option D) are general terms describing groups of individuals living together, which provide the context for health but do not define the specific causal factors themselves. In social medicine, identifying social pathology is crucial for implementing primordial and primary prevention strategies that target the root social causes of illness. By addressing these systemic factors, healthcare systems can reduce the overall disease burden beyond purely clinical interventions.

Question 72. A woman notices that her hands turn white and then red on exposure to cold, such as while washing clothes with cold water. Which drug is most appropriate for managing her symptoms?

A. ACE inhibitors

B. Calcium channel blockers

C. Thiazides

D. Alpha-blockers

Correct answer: B

The clinical description of hands changing color from white to red upon exposure to cold water is pathognomonic for Raynaud's phenomenon. This condition involves episodic vasospasms of the digital arteries. Dihydropyridine calcium channel blockers (CCBs), specifically Nifedipine, are the first-line pharmacological treatment of choice. They work by promoting peripheral vasodilation and reducing the frequency and severity of vasospastic attacks. ACE inhibitors (Option A) are used for hypertension but have limited efficacy in digital vasospasm. Thiazide diuretics (Option C) are not indicated for Raynaud’s and can occasionally worsen the condition. While alpha-blockers (Option D) have vasodilatory properties, they are generally considered second-line therapy due to a higher side-effect profile compared to CCBs. Therefore, given the specific cold-triggered symptoms, CCBs offer the most effective symptomatic management for this patient by preventing the abnormal vasoconstriction responsible for the digital color changes.

Question 73. According to the World Health Organization (WHO), how is maternal death defined?

A. Death after delivery

B. Death from full-term pregnancy within 24 hours of delivery

C. Death during pregnancy and within 1 year after delivery

D. Death during pregnancy and within 6 weeks of delivery

Correct answer: D

The WHO defines maternal death as the death of a woman while pregnant or within 42 days (6 weeks) of termination of pregnancy. This death can be from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Option A is too non-specific regarding the time frame. Option B incorrectly limits the definition to 24 hours post-delivery. Option C describes "late maternal death," which occurs between 42 days and one year after delivery, but this is a separate statistical category. The 42-day window (6 weeks) is critical for public health monitoring, as it covers the puerperium period where pregnancy-related complications like sepsis or hemorrhage are most likely to occur. Accurately classifying these deaths allows countries to measure their Maternal Mortality Ratio (MMR) and evaluate the quality of their obstetric care systems.

Question 74. A 65-year-old woman with diabetes mellitus presents with a black, foul-smelling nasal discharge. Examination reveals a necrotic mass in the nasal cavity with erosion of the nasal septum and hard palate. What is the most likely

diagnosis responsible for these findings?

A. Aspergillosis

B. Mucormycosis

C. Foreign body

D. Rhinosporidiosis

Correct answer: B

The clinical presentation of a black, necrotic nasal mass with erosion of the palate in an elderly diabetic patient is pathognomonic for Rhino-orbital-cerebral Mucormycosis. This is an aggressive, life-threatening fungal infection caused by Mucorales, which thrives in diabetic patients, especially those in ketoacidosis. The fungus is angioinvasive, causing vascular thrombosis and subsequent tissue necrosis (hence the black color). Aspergillosis (Option A) can cause invasive sinusitis but is generally less hyper-acute than mucormycosis. A foreign body (Option C) would cause foul-smelling discharge but rarely systemic necrosis or extensive bony erosion. Rhinosporidiosis (Option D) typically presents with friable, strawberry-like polyps rather than black necrosis. Immediate management includes aggressive surgical debridement and high-dose intravenous Amphotericin B. Therefore, given the rapid destruction and diabetic history, Mucormycosis is the most likely and most dangerous diagnosis.

Question 75. A 60-year-old patient with diabetes mellitus presents with severe ear pain and persistent otorrhea that has not responded to antibiotic therapy. On examination, granulation tissue is seen in the external auditory canal, along with facial nerve paralysis. What is the most likely diagnosis?

A. Otomycosis

B. Serous otitis media

C. Malignant otitis externa

D. Eczematous otitis externa

Correct answer: C

Malignant otitis externa, also known as Necrotizing Otitis Externa, is a severe, life-threatening infection of the external ear canal and skull base. It occurs almost exclusively in elderly diabetic or immuno compromised patients. The hallmark clinical features include excruciating ear pain (disproportionate to findings), persistent otorrhea, and the presence of granulation tissue at the junction of the cartilaginous and bony canal. The involvement of cranial nerves, most commonly the facial nerve (CN VII) resulting in paralysis, indicates advanced disease and osteomyelitis of the temporal bone. Otomycosis (Option A) involves fungal growth but is not necrotic. Serous otitis media (Option B) involves painless fluid behind the drum. Eczematous otitis externa

(Option D) is an itchy, skin-surface inflammation without deep invasion. Therefore, the combination of diabetes, granulation tissue, and nerve paralysis makes Malignant Otitis Externa the definitive diagnosis.

Question 76. A 35-year-old man presents with recurrent episodes of vertigo, a feeling of ear fullness and pressure, hearing loss, and a low-frequency roaring tinnitus. What is the most likely clinical diagnosis?

A. Meniere's disease

B. Benign paroxysmal positional vertigo

C. Labyrinthitis

D. Syncope

Correct answer: A

The classic clinical tetrad described—episodic dizziness (vertigo), fluctuating sensorineural hearing loss, aural fullness (pressure), and low-frequency tinnitus (roaring sound)—is pathognomonic for Meniere's disease. This condition is caused by endolymphatic hydrops, which is an over-accumulation of fluid in the inner ear. Benign Paroxysmal Positional Vertigo (BPPV) (Option B) involves brief vertigo spells triggered solely by head movement and lacks hearing loss or tinnitus. Labyrinthitis (Option C) presents with sudden, severe vertigo and hearing loss usually following a viral infection, but it is typically a single, intense event rather than intermittent episodes. Syncope (Option D) is a brief loss of consciousness due to reduced cerebral blood flow and is not associated with primary ear symptoms. Therefore, the characteristic constellation of fluctuating auditory and vestibular symptoms confirms Meniere's disease as the potential clinical diagnosis for this patient.

Question 77. A 45-year-old man presents to the emergency department with acute loss of vision accompanied by pain on eye movement. Examination reveals a relative afferent pupillary defect (RAPD), a normal-appearing optic disc, and central scotoma on visual field testing. What is the most likely diagnosis?

A. Resuscitation - reconstruction - debridement

B. Resuscitation - debridement - allograft or
auto- graft
C. Debridement - resuscitation - autograft
D. Debridement - reconstruction - resuscitation

Correct answer: B

The management of severe burns (third and fourth degree) follows a critical surgical hierarchy. The absolute first step is always Resuscitation (Option B) to maintain hemodynamic stability and prevent burn shock using the Parkland formula. Once the patient is stabilized, the next priority is Debridement, which involves the removal of dead, necrotic tissue (eschar) to prevent infection. Finally, the open wound must be covered to prevent fluid loss and promote healing, typically using an allograft (temporary donor skin) or an autograft (the patient's own skin). Options A, C, and D are incorrect because reconstruction cannot occur before debridement, and debridement should not precede hemodynamic stabilization. Following this sequential path—Resuscitation, Debridement, and Grafting—is the established standard of care in burn centers to ensure patient survival and maximize functional outcomes after such severe injuries.

Question 78. When choosing the power of an intraocular lens (IOL) for a child younger than one year, which factors should be taken into account?

A. Myopic shift
B. Hypermetropic shift
C. Length of the lens capsule
D. Growth of the lens capsule

Correct answer: A

Pediatric cataract surgery requires careful IOL power calculation due to the rapid growth of the eye. A child's eye undergoes significant elongation of the axial length and flattening of the cornea during the first few years of life. This physiological growth results in a predictable myopic shift over time. If a child is corrected to emmetropia (zero power) at infancy, they will become severely myopic (nearsighted) as they grow. Therefore, when selecting an IOL for a child under 1 year old, surgeons typically "under-correct" the eye, leaving the infant with a significant amount of hypermetropia initially to account for the future myopic shift. Option B is the result of the desired under-correction, but Option A is the underlying biological phenomenon that necessitates it. Options C and D relate to the capsule rather than the refractive shift. Thus, myopic shift is the primary factor driving IOL power choice.

Question 79. A 21-year-old student develops redness of the eye, a foreign body sensation, and profuse watering after using contact lenses. Corneal scraping and interference contrast microscopy

suggest an infectious etiology. Which organism is most likely responsible for these symptoms?

A. Acanthamoeba

B. Naegleria fowleri

C. Entamoeba histolytica

D. Balamuthia mandrillaris

Correct answer: A

The clinical history of a young contact lens wearer presenting with persistent ocular pain and redness is highly suspicious for Acanthamoeba keratitis. This organism is a free-living amoeba frequently associated with poor lens hygiene or exposure to tap water. The provided microscopic image displays characteristic Acanthamoeba cysts (Option A), which have a double-walled structure, often appearing polyhedral or stellate. Naegleria fowleri (Option B) causes primary amebic meningoencephalitis and is not a common cause of keratitis. Entamoeba histolytica (Option C) causes intestinal amebiasis. Balamuthia (Option D) is an extremely rare cause of granulomatous brain infections. Acanthamoeba keratitis is notorious for being painful (out of proportion to signs) and potentially leading to a ring-shaped corneal infiltrate. Therefore, given the contact lens association and the pathognomonic microscopy, Acanthamoeba is the responsible organism.

Question 80. A 52-year-old woman presents with a progressively enlarging fleshy growth on the sclera that is extending onto the cornea toward the pupillary area, causing discomfort and visual disturbance. What is the most appropriate management for this progressive pterygium?

A. Keratoplasty

B. Excision with conjunctival autograft

C. Observation

D. Beta-radiation

Correct answer: B

A pterygium is a benign, wing-shaped fibrovascular growth of the bulbar conjunctiva that can invade the cornea. When the pterygium is progressive and begins encroaching on the visual axis (pupil) or causing significant astigmatism, surgical intervention is mandatory. The current

gold standard management is surgical excision followed by a conjunctival autograft (CAG). This technique involves covering the bare sclera with a piece of the patient's own healthy conjunctiva, which significantly reduces the high rate of recurrence compared to simple excision alone. Keratoplasty (Option A) is only indicated for severe scarring after removal. Observation (Option C) is inappropriate for a growth that is actively threatening vision. Beta-radiation (Option D) is an older technique used to prevent recurrence but has been largely replaced by autografting due to potential long-term scleral melting. Thus, excision with autograft is the definitive treatment.

Question 81. A 45-year-old patient presents with a firm, painless lump on the upper eyelid that has been gradually increasing in size over several months. The swelling is situated away from the eyelid margin. Based on these clinical features, what is the most likely diagnosis?

A. Stye

B. Entropion

C. Chalazion

D. Blepharitis

Correct answer: C

A chalazion is a chronic, non-infectious granulomatous inflammation of a Meibomian gland. Its classic clinical features match this scenario perfectly: it is a firm, painless nodule that develops slowly over weeks or months. Crucially, it is typically located within the tarsal plate, away from the lid margin (Option C). In contrast, a Stye or hordeolum (Option A) is an acute bacterial infection of the hair follicle or gland, which is intensely painful and located directly on the eyelid edge. Entropion (Option B) is the inward turning of the eyelid margin, not a discrete lump. Blepharitis (Option D) is a diffuse, chronic inflammation of the entire lid margin characterized by crusting and redness rather than a localized firm nodule. Therefore, based on the chronic, painless, and localized nature of the eyelid mass, chalazion is the correct diagnosis.

Question 82. A 27-year-old man presents to the emergency department with a history of eye trauma caused by vegetative matter. He complains of mild ocular pain, photophobia, and redness. On examination, a corneal ulcer is seen along with hypopyon and characteristic satellite lesions surrounding the ulcer. Based on these findings, what is the most likely diagnosis?

A. Fungal keratitis

B. Acanthamoeba keratitis

C. Viral keratitis

D. Bacterial keratitis

Correct answer: A

The history of ocular trauma involving vegetative matter (like a branch or leaf) is the classic predisposing factor for fungal keratitis. The examination findings of a corneal ulcer accompanied by a hypopyon (pus in the anterior chamber) and, most significantly, satellite lesions (small infiltrates separate from the main ulcer), are diagnostic hallmarks of a fungal etiology. Acanthamoeba keratitis (Option B) typically presents in contact lens wearers with severe pain and a ring infiltrate. Viral keratitis (Option C) classically shows a dendritic or geographic ulcer pattern. Bacterial keratitis (Option D) usually has a more rapid, suppurative onset and lacks satellite lesions. Diagnosis should be confirmed by corneal scraping for KOH mount or culture on Sabouraud dextrose agar. Therefore, given the specific trauma history and pathognomonic satellite lesions, fungal keratitis is the most likely diagnosis.

Question 83. A patient complains of significant eye discomfort while reading printed text or using digital screens, despite having normal visual acuity and an otherwise unremarkable eye examination. The only abnormal finding is a Schirmer’s test result of 5 mm. What is the most appropriate and effective treatment in this case?

A. Steroids

B. Antihistamine

C. Lubricants

D. Prescribed spectacles

Correct answer: C

The patient’s symptoms of discomfort during visually intensive tasks (like reading or screen use) and a Schirmer's test result of 5mm (normal is mm) are diagnostic of Dry Eye Disease (keratoconjunctivitis sicca). A result of 5mm indicates significant aqueous tear deficiency. The most effective and standard first-line treatment for managing symptoms and protecting the ocular surface is the frequent use of lubricants (Option C), such as artificial tears or gels. Steroids (Option A) are only used for short-term control of severe inflammation and carry risks of glaucoma or cataracts. Antihistamines (Option B) are used for allergic conjunctivitis and can actually worsen dry eyes by reducing tear production. Since the patient has normal visual acuity, prescribed spectacles (Option D) would not address the underlying tear deficiency. Therefore, tear film replacement with lubricants is the most appropriate management.

(A) Pretumor syndrome
(B) Paraneoplastic syndrome
(C) Paratumor syndrome
(D) Autocrine phenomenon
AAns

(B) Paraneoplastic syndrome
A paraneoplastic syndrome describes a group of systemic symptoms and signs that develop in a patient with cancer but are not directly caused by the local presence of the tumor or its metastases. Instead, these syndromes are mediated by hormones, cytokines, or an immune response triggered by the malignancy. The patient's "hypercalcemia" in the absence of a visible mass is a classic paraneoplastic finding, often due to the secretion of Parathyroid Hormone-related Protein (PTHrP) by an occult squamous cell carcinoma. Pretumor (Option A) and Paratumor (Option C) syndromes are not standard medical terms for this phenomenon. Autocrine phenomenon (Option D) refers to a cell secreting hormones that act on itself, rather than causing systemic syndrome. Therefore, paraneoplastic syndrome is the correct clinical term for these systemic, hormone-mediated manifestations of an underlying, unidentified malignancy.

Question 84. A 5-year-old boy is brought to the ophthalmology OPD with complaints of intense eye itching and marked photophobia. His parents also report the presence of thick ocular discharge. Based on these symptoms, what is the most likely diagnosis?
A. Trachoma
B. Vernal keratoconjunctivitis
C. Phlyctenular conjunctivitis
D. Xerophthalmia
Correct answer: B
The clinical presentation of a young boy with severe itching, photophobia (light sensitivity), and a thick ropy discharge is pathognomonic for Vernal Keratoconjunctivitis (VKC). VKC is a seasonal, bilateral allergic inflammation common in young males living in warm, dry climates. Hallmark signs include "cobblestone" papillae on the superior tarsal conjunctiva or Horner-Trantas dots at the limbus. Trachoma (Option A) involves chronic scarring and is caused by Chlamydia trachomatis. Phlyctenular conjunctivitis (Option C) presents with a localized nodule (phlycten) usually due to hypersensitivity to TB or staphylococcal proteins. Xerophthalmia (Option D) is caused by Vitamin A deficiency and presents with dryness and

Bitot's spots, not intense itching and thick discharge. VKC is managed with topical mast cell stabilizers and antihistamines. Therefore, based on the specific allergic symptoms and demographic, VKC is the most likely diagnosis.

Question 85. A 61-year-old university professor presents with sudden loss of vision in his left eye, describing it as a curtain descending over the eye. He also reports experiencing flashes of light and floaters about a week earlier. His medical history is significant for cataract surgery in the same eye three weeks ago. A B-scan image of the left eye is provided. Based on this presentation, what is the most likely diagnosis?

A. Glaucoma

B. Retinal tumor

C. Retinal detachment

D. Corneal ulcer

Correct answer: C

The patient’s history of "flashing lights" (photopsia) and "floaters" followed by a vision loss described as a "curtain being pulled" is the classic clinical triad for Rhegmatogenous Retinal Detachment (RD). Post-cataract surgery (pseudophakia) is a well-known risk factor for RD. The provided B-scan ultrasound provides definitive radiological evidence, showing a high-reflective, undulating membrane within the vitreous cavity that remains attached to the optic nerve head, forming a classic funnel shape. Glaucoma (Option A) causes progressive peripheral field loss, not an acute "curtain" effect. A retinal tumor (Option B) would appear as a solid, vascularized mass on B-scan. A corneal ulcer (Option D) would be visible on external examination and not require a B-scan for diagnosis. Therefore, the combination of clinical symptoms and the pathognomonic B-scan image confirms the diagnosis of Retinal Detachment.

Question 86. A 3-year-old boy has developed progressive clumsiness over the past six months. On ocular examination, the left eye shows a cauliflower-like mass, leukocoria, and absence of the red reflex. The eye is enucleated, and histopathological examination reveals Flexner–Wintersteiner rosettes. Based on these findings, what is the most likely diagnosis?

A. Retinoblastoma

B. Neurofibroma

C. Malignant melanoma

D. Toxocara infestation

Correct answer: A

The presentation of leukocoria (white pupillary reflex) and an absent red reflex in a 3-year-old child is highly suggestive of retinoblastoma, the most common primary intraocular malignancy of childhood. The "cauliflower-like growth" indicates an advanced stage of the tumor. The definitive diagnostic hallmark provided is the microscopic finding of Flexner-Wintersteiner rosettes, which are pathognomonic for retinoblastoma. These rosettes consist of cells arranged around a central lumen, representing attempt at photoreceptor differentiation. Neurofibroma (Option B) would present with different systemic markers like café-au-lait spots. Malignant melanoma (Option C) is rare in children and looks different histologically. Toxocara infestation (Option D) can cause leukocoria but is inflammatory rather than neoplastic and lacks these specific rosettes. Retinoblastoma is caused by mutations in the RB1 tumor suppressor gene. Thus, based on age, signs, and pathognomonic pathology, retinoblastoma is the correct diagnosis.

Question 87. A 55-year-old woman presents with difficulty reading and eye strain while focusing on near objects. She has a known history of myopia and has recently developed these new symptoms. On detailed ophthalmic evaluation, she is found to have an atypical form of presbyopia in which the horizontal meridian is more powerful than the vertical meridian. Which combination of cylindrical lenses would be most suitable to correct her refractive error?

A. +5.00 DC × 180, −3.00 DC × 90

B. +7.00 DC × 180, +5.00 DC × 90

C. −4.00 DC × 180, −5.00 DC × 90

D. −3.00 DC × 180, +1.00 DC × 90

Correct answer: A

The question describes an atypical presbyopia with astigmatism, where the horizontal meridian is more powerful than the vertical meridian. This means the eye has greater refractive power in the horizontal (180°) meridian, so it requires less plus (or more minus) correction compared to the vertical meridian.

In cylindrical lens notation:

1.

Axis 180° corrects the horizontal meridian

2.

Axis 90° corrects the vertical meridian

Since the horizontal meridian is already more powerful, it needs relatively less convex (+) correction or more concave (−) effect. The vertical meridian, being weaker, needs more plus power.

Option (A) provides:

1.

+5.00 DC × 180 (moderate correction for horizontal meridian)

2.

−3.00 DC × 90 (effectively increases power difference between meridians)

This combination creates the appropriate power difference between the two principal meridians, correcting the astigmatic imbalance.

Other options:

(B)

Both positive → no differential correction

(C)

Both negative → incorrect for presbyopia

(D)

Insufficient correction

Question 88. What is the probable cause of monocular diplopia in a young boy who has experienced trauma to his right eye?

A. Festooned pupil

B. Iris bombe

C. Iridodonesis

D. Iridodialysis

Correct answer: D

The provided image displays a classic iridodialysis, which is a separation of the iris root from its attachment to the ciliary body, usually resulting from blunt trauma. This separation creates a "second opening" or peripheral gap that allows light to enter the eye through a route other than the natural pupil. This results in monocular diplopia (double vision in one eye) as two images are formed on the retina. A festooned pupil (Option A) is irregularly shaped due to old inflammatory adhesions (synechiae). Iris bombe (Option B) is the forward bulging of the iris due to fluid trapped behind it, often seen in glaucoma. Iridodonesis (Option C) refers to a "tremulous iris" caused by a subluxated or absent lens. None of those options classically cause monocular

diplopia as directly as the traumatic gap shown. Therefore, Iridodialysis is the definitive cause of the symptom and the diagnosis.

Question 89. On ocular examination, a teenage girl with a low body weight is found to have the ocular abnormality shown. According to the WHO classification, which grade does this finding correspond to?

A. 1A

B. 1B

C. 2A

D. 2B

Correct answer: B

The image depicts a Bitot's spot, which is a characteristic finding of Vitamin A deficiency (Xerophthalmia). Bitot's spots are dry, foamy, triangular patches of keratinized epithelium typically located on the temporal bulbar conjunctiva. According to the World Health Organization (WHO) classification for Xerophthalmia, the specific grades are:

1.

X1A: Conjunctival xerosis (dryness)

2.

X1B: Bitot's spot

3.

X2: Corneal xerosis

4.

X3A/B: Corneal ulceration/keratomalacia

Options A (1A), C (2A), and D (2B) are incorrect as they represent different stages or are not standard WHO xerophthalmia codes. The "teenage girl with low body weight" suggests chronic malnutrition, which is the primary risk factor for this deficiency. Bitot's spots are reversible with high-dose Vitamin A supplementation. Therefore, based on the pathognomonic visual finding shown in the image, WHO grade 1B is the correct classification.

Question 90. Which of the following medications is used for the management of tumor lysis syndrome?

A. Rasburicase

B. Rituximab

C. Gemtuzumab

D. Alemtuzumab

Correct answer: A

Tumor Lysis Syndrome (TLS) is a metabolic emergency occurring during cancer treatment when

a large number of tumor cells are rapidly destroyed, releasing intracellular contents. This results in hyperuricemia, which can cause acute renal failure. Rasburicase is a recombinant urate oxidase enzyme that directly converts poorly soluble uric acid into highly soluble allantoin, which is easily excreted by the kidneys. Rituximab (Option B), Gemtuzumab (Option C), and Alemtuzumab (Option D) are all monoclonal antibodies used as chemotherapy agents to kill the cancer cells (potentially triggering TLS) rather than managing the metabolic byproduct. Rasburicase is specifically indicated for the prevention and treatment of hyperuricemia in patients receiving therapy for highly proliferative malignancies like leukemias and lymphomas. Therefore, among the choices provided, Rasburicase is the only medication utilized specifically for the biochemical management of TLS complications.

Question 91. The pancreatic neuroendocrine tumor classically associated with necrolytic migratory erythema is glucagonoma.

A. Insulinoma

B. Glucagonoma

C. Somatostatinoma

D. VIPoma

Correct answer: B

Glucagonoma is a rare neuroendocrine tumor of the pancreatic alpha cells that secretes excessive glucagon. It is clinically defined by a classic "4D" syndrome: Diabetes mellitus, Dermatitis (specifically Necrolytic Migratory Erythema), DVT (venous thrombosis), and Depression. Necrolytic migratory erythema (NME) is the pathognomonic skin rash, appearing as painful or itchy red plaques that blister and crust, typically around the groin and limbs. Insulinoma (Option A) presents with the Whipple triad of fasting hypoglycemia. Somatostatinoma (Option C) presents with a triad of diabetes, gallstones, and steatorrhea. VIPoma (Option D) causes "pancreatic cholera," characterized by profuse watery diarrhea, hypokalemia, and achlorhydria (WDHA syndrome). Because NME is uniquely and specifically linked to excessive glucagon levels, glucagonoma is the definitive diagnosis. Treatment involves somatostatin analogs and surgical resection to control the hormone excess and resolve the characteristic skin lesions.

Question 92. A 60-year-old man presents with unexplained weight loss, fatigue, and hypercalcemia, without any detectable primary tumor or palpable mass. Laboratory investigations show elevated

hormone levels that are not normally associated with any identified malignancy. What term best describes this condition, in which systemic symptoms arise due to hormone secretion from an occult tumor?

A. Cisplatin

B. Gemcitabine

C. Paclitaxel

D. Ifosfamide

Correct answer: A

In the concurrent chemoradiotherapy (trimodality therapy) used for muscle-invasive bladder cancer, Cisplatin is the primary radiosensitizing agent of choice. When used in combination with radiation, cisplatin carries a significantly increased risk of synergistic toxicity, most notably nephrotoxicity and peripheral neuropathy. To minimize these risks, the dosage must be carefully adjusted, often being delivered in lower, frequent weekly doses rather than high-dose pulses used in standard systemic therapy. Gemcitabine (Option B) is also used but is a more potent radiosensitizer with a higher risk of local bowel and bladder inflammation (toxicity). Paclitaxel (Option C) and Ifosfamide (Option D) are typically reserved for salvage therapy or metastatic disease rather than primary concurrent radiosensitization protocols. Therefore, because of its gold-standard status and dose-limiting renal and neurological side effects during radiation, Cisplatin is the medication most critical for dosage adjustment.

Question 93. A 60-year-old man presents with gradually progressive, nonspecific symptoms over several months. He reports painless swelling in the neck due to enlarged lymph nodes and a recent onset of hearing loss, which is found to be conductive on evaluation. Otoscopic examination shows a dull tympanic membrane, and further assessment reveals reduced mobility of the soft palate. Considering this constellation of findings, what is the most likely diagnosis?

A. Nasopharyngeal carcinoma

B. Adenoid cystic carcinoma

C. Juvenile nasopharyngeal angiofibroma

D. Quinsy

Correct answer: A

The combination of painless neck nodes (lymphadenopathy), unilateral conductive hearing loss (due to Eustachian tube obstruction and serous otitis media), and decreased palate mobility is the classic clinical triad for Nasopharyngeal Carcinoma (NPC). The "dull tympanic membrane" reflects the middle ear effusion common in these patients. NPC often presents silently in the Rosenmüller's fossa. Adenoid cystic carcinoma (Option B) typically involves major salivary glands. Juvenile Nasopharyngeal Angiofibroma (Option C) is a benign, highly vascular tumor seen almost exclusively in adolescent males, not 60-year-olds. Quinsy (Option D) is an acute peritonsillar abscess causing severe pain, fever, and trismus, not chronic lymphadenopathy and hearing loss. In an older patient presenting with unilateral ear effusion and neck nodes, the nasopharynx must always be examined to rule out carcinoma. Therefore, NPC is the most likely diagnosis.

Question 94. Which of the following options can be employed for the treatment of Kesari dal toxicity?

A. Sodium bicarbonate

B. Vitamin A

C. Vitamin C

D. IV immunoglobulin

Correct answer: C

Kesari dal (Lathyrus sativus) consumption leads to neurolathyrism, a crippling spastic paraplegia caused by the neurotoxin BOAA. Studies and clinical observations have suggested that Vitamin C (ascorbic acid) may offer protective effects or act as an adjunct in management. Vitamin C is thought to help by reducing oxidative stress or potentially influencing the absorption and metabolism of the toxin. Sodium bicarbonate (Option A) is used for metabolic acidosis. Vitamin A (Option B) is used for ocular deficiencies. IV immunoglobulin (Option D) is used for autoimmune neuromuscular disorders like GBS. While the primary prevention is the avoidance of the dal or specialized soaking techniques to leach the toxin, Vitamin C remains the standard "medical" adjunct mentioned in this context. Therefore, Vitamin C is the only correct pharmacological option listed for addressing the toxicity associated with chronic Kesari dal ingestion.

Question 95. Which of the following conditions is not treated with high-ceiling diuretics?

A. Generalized edema

B. Cerebral edema

C. Acute pulmonary edema

D. Pulmonary hypertension

Correct answer: D

High-ceiling diuretics, such as Furosemide (Lasix), are potent loop diuretics used to manage states of severe fluid overload. They are the mainstay of treatment for generalized edema (Option A), acute pulmonary edema (Option C) in congestive heart failure, and are sometimes used as adjuncts in the management of cerebral edema (Option B) to reduce intracranial volume. However, they are NOT used to treat pulmonary hypertension (Option D). Pulmonary hypertension is a condition of high pressure in the lung's arteries, requiring specialized vasodilators like sildenafil or bosentan to lower the vascular resistance. While diuretics may be used in right-sided heart failure resulting from pulmonary hypertension, they do not treat the underlying hypertensive vascular condition itself. Therefore, pulmonary hypertension is the correct "except" choice as its primary pathology is vascular resistance rather than simple fluid retention.

Question 96. A 58-year-old man with known congestive heart failure attends a routine follow-up visit. Cardiac assessment shows a reduced ejection fraction. While reviewing treatment options to improve long-term outcomes, which of the following drugs used in heart failure with reduced ejection fraction (HFrEF) has not been shown to reduce mortality?

A. Digoxin

B. Beta-blockers

C. ACE inhibitors

D. Hydralazine + isosorbide dinitrate

Correct answer: A

In the management of heart failure with reduced ejection fraction (HFrEF), pharmacological goals include both symptom relief and survival improvement. Beta-blockers (Option B), ACE inhibitors (Option C), and the combination of Hydralazine/Isosorbide dinitrate (Option D) are all cornerstone therapies with well-documented mortality benefits. These drugs slow the progression of cardiac remodeling and extend life. Digoxin (Option A), while useful for improving symptoms and reducing the frequency of hospitalizations, has no proven benefit in decreasing overall mortality. It acts as a positive inotrope but does not target the neurohormonal pathways responsible for heart failure progression. Therefore, while it remains a valuable adjunct for symptom control in stable HFrEF, it is the only drug listed that does not directly extend the patient's lifespan. Consequently, Digoxin is the correct identification for a drug lacking a documented mortality benefit.

Question 97. In a middle-aged man, an X-ray reveals

multiple lytic bone lesions, leading to further evaluation with urine analysis. The test detects the presence of Bence Jones proteins. Among the immunoglobulins, which type is most commonly associated with this finding?

A. IgA

B. igD

C. IgG

D. IgM

Correct answer: C

The clinical picture of a middle-aged patient with multiple "punched-out" lytic lesions on X-ray and Bence Jones proteins in the urine is classic for Multiple Myeloma. This is a plasma cell malignancy characterized by the production of monoclonal (M) proteins. In Multiple Myeloma, the most common immunoglobulin subtype secreted by the malignant plasma cells is IgG (found in approximately 50-60% of cases). IgA (Option A) is the second most common (about 20%). IgM (Option D) is associated with Waldenström macroglobulinemia, which typically presents with hyperviscosity rather than lytic bone lesions. IgD (Option B) is extremely rare. Therefore, while several types of monoclonal proteins can be present, IgG is the immunoglobulin most frequently linked to the classic skeletal and renal manifestations of Multiple Myeloma. Bence Jones proteins themselves represent the excessive monoclonal light chains excreted by the kidneys.

Question 98. A patient presents with complaints of fatigue and is found to have a hemoglobin level of less than 9 g/dL. Peripheral blood smear examination reveals sickle-shaped red blood cells. What is the most appropriate management strategy for this patient?

A. Administer IV antibiotics

B. Blood transfusion

C. Administer deferoxamine

D. Wait and watch

Correct answer: B

The presence of "sickle-shaped" red blood cells confirms the diagnosis of Sickle Cell Anemia. A hemoglobin level below 9 g/dL combined with clinical symptoms like fatigue indicates a severe anemic state. The most appropriate immediate management for symptomatic, severe anemia in this context is a blood transfusion (Option B). This quickly elevates the oxygen-carrying capacity and dilutes the concentration of sickled cells. IV antibiotics (Option A) would only be

indicated if there were signs of concurrent infection. Deferoxamine (Option C) is an iron chelator used for chronic iron overload, not for acute anemia. "Wait and watch" (Option D) is dangerous when a patient is symptomatic with significantly low hemoglobin. For sickle cell patients, simple or exchange transfusions are critical interventions to prevent or treat complications such as acute chest syndrome or stroke during anemic crises.

Question 99. A 68-year-old patient with a known history of lung cancer presents with progressively worsening shortness of breath. On physical examination, bronchial breath sounds and a dull note on percussion are detected in the left infrascapular area. Based on these findings, what is the most likely diagnosis?

A. Cardiac tamponade

B. Chronic constrictive pericarditis

C. Pulmonary embolism

D. Left-sided pleural effusion

Correct answer: D

The patient’s history of lung cancer and increasing dyspnea suggests a common complication like fluid accumulation. The clinical findings of a dull percussion note and bronchial breathing (which occurs just above the fluid level) in the left base are hallmark signs of a Pleural Effusion. The provided chest X-ray provides definitive radiological confirmation, showing a homogenous opacification of the left lung base with a classic meniscus sign (concave upper border). Cardiac tamponade (Option A) and pericarditis (Option B) would present with heart-specific signs like muffled sounds and JVP changes. Pulmonary embolism (Option C) typically presents with a normal chest X-ray or non-specific wedge shadows. Therefore, given the specific combination of lung malignancy, pathognomonic physical signs, and clear radiographic meniscus, a left-sided pleural effusion is the definitive diagnosis.

Question 100. Analyze the results of the electrocardiogram (ECG) provided below.

A. Ventricular fibrillation

B. Atrial fibrillation

C. Supra ventricular tachycardia

D. Ventricular tachycardia

Correct answer: C

The ECG strip shows a regular, rapid rhythm with narrow QRS complexes and a rate typically around 150–250 beats per minute. P waves are either absent or not clearly visible, often buried within or just after the QRS complexes. These features are characteristic of supraventricular

tachycardia (SVT), which originates above the ventricles (usually AV nodal re-entry).

Why other options are incorrect:

(A)

Ventricular fibrillation → Chaotic, irregular waveform with no identifiable QRS complexes (not seen here)

(B)

Atrial fibrillation → Irregularly irregular rhythm with absent P waves (this ECG is regular)

(D)

Ventricular tachycardia → Wide QRS complexes (>120 ms), unlike the narrow complexes seen here

Question 101. A 58-year-old woman presents with recurrent episodes of flushing and diarrhea. Further evaluation reveals a mass in the distal small intestine, and laboratory testing shows elevated urinary levels of 5-hydroxyindoleacetic acid (5-HIAA). Based on these findings, what is the most likely diagnosis?

A. Carcinoid tumor

B. Neuroblastoma

C. Leiomyoma

D. Chromaffinoma

Correct answer: A

The combination of a small intestinal mass, cutaneous flushing, and secretory diarrhea is the classic clinical presentation of Carcinoid Syndrome. This syndrome occurs when a carcinoid tumor (a well-differentiated neuroendocrine tumor) metastasizes to the liver or arises outside the portal drainage, allowing bioactive amines like serotonin to enter the systemic circulation. The definitive diagnostic hallmark is the elevation of urinary 5-HIAA, which is the primary metabolite of serotonin. Neuroblastoma (Option B) is a common pediatric tumor that secretes catecholamines. Leiomyoma (Option C) is a benign smooth muscle tumor without endocrine activity. Chromaffinoma (Option D), or pheochromocytoma, secretes catecholamines and presents with hypertension and palpitations rather than intestinal masses and serotonin-related flushing. Therefore, the intestinal location and high 5-HIAA levels confirm that a carcinoid tumor is the underlying cause of the patient’s symptoms.

Question 102. A patient complains of a chronic morning cough with production of yellow sputum that becomes more pronounced when changing posture from the left side to the right. Based on this positional

variation and symptom profile, what is the most likely underlying lung condition?

A. Lung cancer

B. Bronchiectasis

C. Bronchial asthma

D. Pulmonary embolism

Correct answer: B

The clinical presentation of a chronic morning cough with copious "yellow" (purulent) sputum and postural variation (symptoms triggered or worsened by changing body positions) is highly suggestive of Bronchiectasis. In bronchiectasis, permanent dilation of the bronchi allows for the accumulation of large volumes of infected mucus. When the patient shifts positions, this pool of secretions moves and irritates different parts of the airway, triggering forceful coughing to clear the material. Lung cancer (Option A) usually presents with hemoptysis and weight loss. Bronchial asthma (Option C) is characterized by wheezing and reversible airway obstruction, usually worse at night rather than specifically tied to postural changes in sputum production. Pulmonary embolism (Option D) presents with acute pleuritic chest pain and dyspnea, not chronic purulent morning cough. Therefore, the mechanical pooling of secretions that move with gravity makes bronchiectasis the most probable diagnosis.

Question 103. Identify function of the instrument given below:

A. Myomectomy

B. Hysterosalpingography

C. Endometrial biopsy

D. Conization of cervix

Correct answer: B

The instrument shown in the image is a Rubin’s cannula or a similar uterine insufflation cannula, which is primarily used for Hysterosalpingography (HSG) (Option B). This procedure involves injecting a contrast medium or gas through the cannula into the uterine cavity and fallopian tubes to check for patency and uterine anomalies. Myomectomy (Option A) is the surgical removal of fibroids, which requires scalpels or laparoscopic tools rather than a simple contrast cannula. Endometrial biopsy (Option C) utilizes a Pipelle or curette to sample the lining of the uterus. Conization of the cervix (Option D) is an excisional procedure for cervical dysplasia performed with a laser, scalpel, or LEEP wire. Therefore, the instrument’s specific design for sealing the cervical canal to allow for pressurized fluid or gas entry confirms its role in HSG.

Question 104. A 34-year-old woman with a history of chronic alcohol intake and recent NSAID use for abdominal pain presents with sudden onset

of severe, generalized abdominal pain. A radiograph is provided for evaluation. Based on the clinical history and imaging findings, what is the most likely diagnosis?

A. Rupture of ectopic pregnancy

B. Acute pancreatitis

C. Perforated liver abscess

D. Hollow viscus perforation

Correct answer: D

The patient’s history of regular alcohol and NSAID use is a major risk factor for peptic ulcer disease, which has progressed to a surgical emergency. The provided erect chest X-ray shows pneumoperitoneum, clearly visible as a crescent of "free gas under the diaphragm". This is a pathognomonic radiological sign of Hollow Viscus Perforation, most commonly involving a perforated gastric or duodenal ulcer. While ectopic pregnancy rupture (Option A) causes severe pain and hemoperitoneum, it does not release air into the abdominal cavity. Acute pancreatitis (Option B) presents with severe pain but typically lacks free air on imaging. A perforated liver abscess (Option C) can cause peritonitis but would show fluid and potentially localized gas within the liver rather than generalized pneumoperitoneum. Therefore, the combination of specific risk factors and the presence of subdiaphragmatic free air confirms a perforated hollow organ.

Question 105. A young man presents with gradually worsening drooping of the eyelids that becomes more pronounced by evening and improves after rest or in the morning. He also experiences easy fatigability that increases as the day progresses. The ptosis shows marked, temporary improvement following application of an ice pack over the eyes. Based on these features, what is the most likely diagnosis?

A. Myasthenia gravis

B. Huntington chorea

C. Amyotrophic lateral sclerosis

D. External ophthalmoplegia

Correct answer: A

The clinical presentation of fatigable ptosis (eyelid drooping that worsens with activity or as the day progresses) is the hallmark of Myasthenia Gravis (MG). MG is an autoimmune disorder where antibodies block acetylcholine receptors at the neuromuscular junction. The positive ice

pack test (Option A) is highly suggestive; cold temperatures decrease acetylcholinesterase activity, allowing more acetylcholine to remain in the synaptic cleft, which briefly improves muscle strength. Huntington chorea (Option B) involves movement disorders and dementia. Amyotrophic lateral sclerosis (Option C) causes progressive muscle wasting and permanent weakness rather than diurnal fatigability. External ophthalmoplegia (Option D) refers to paralyzed eye muscles but is a descriptive sign that can be caused by MG, not a standalone diagnosis here. Therefore, the characteristic combination of worsening evening symptoms and improvement with cold/rest confirms Myasthenia Gravis.

Question 106. A 26-year-old man involved in a road traffic accident presents with acute respiratory distress. On examination, he has hypotension, weak peripheral pulses, raised jugular venous pressure without a Y descent, and muffled heart sounds. Based on these clinical findings, what is the most likely diagnosis?

A. Constrictive pericarditis

B. Cardiac tamponade

C. Acute pericarditis

D. Cardiac failure

Correct answer: B

The patient presents with the classic Beck’s triad following trauma: hypotension, muffled heart sounds, and elevated jugular venous pressure (JVP). These findings are characteristic of cardiac tamponade, a life-threatening condition in which blood accumulates rapidly in the pericardial sac, impairing ventricular filling and reducing cardiac output.

A key diagnostic clue is the elevated JVP with an absent Y descent, which occurs because increased intrapericardial pressure prevents rapid atrial emptying into the ventricle during early diastole.

Constrictive pericarditis (Option A) may also present with raised JVP but is distinguished by a prominent Y descent (Friedreich sign). Acute pericarditis (Option C) typically causes sharp pleuritic chest pain and a pericardial friction rub rather than obstructive shock. Cardiac failure (Option D) commonly presents with pulmonary edema and basal crackles, which are often absent in acute tamponade.

Therefore, the history of trauma combined with Beck’s triad confirms cardiac tamponade, which

requires urgent pericardiocentesis.
159. When radiotherapy is administered in combination with chemotherapy for bladder cancer, which drug usually requires a dose reduction because of an increased risk of toxicity?

Question 107. 158. (B) Cardiac tamponade
The patient presents with the classic Beck's triad following trauma: hypotension, muffled heart sounds, and elevated jugular venous pressure (JVP). These findings are characteristic of cardiac tamponade, a life-threatening condition in which blood accumulates rapidly in the pericardial sac, impairing ventricular filling and reducing cardiac output.
A key diagnostic clue is the elevated JVP with an absent Y descent, which occurs because increased intrapericardial pressure prevents rapid atrial emptying into the ventricle during early diastole.
Constrictive pericarditis (Option A) may also present with raised JVP but is distinguished by a prominent Y descent (Friedreich sign).
Acute pericarditis (Option C) typically causes sharp pleuritic chest pain and a pericardial friction rub rather than obstructive shock.
Cardiac failure (Option D) commonly presents with pulmonary edema and basal crackles, which are often absent in acute tamponade.
Therefore, the history of trauma combined with Beck's triad confirms cardiac tamponade, which requires urgent pericardiocentesis.
When radiotherapy is administered in combination with chemotherapy for bladder

cancer, which drug usually requires a dose reduction because of an increased risk of toxicity?

A. Cisplatin

B. Gemcitabine

C. Paclitaxel

D. Ifosfamide

Correct answer: A

In the concurrent chemoradiotherapy (trimodality therapy) used for muscle-invasive bladder cancer, Cisplatin is the primary radiosensitizing agent of choice. When used in combination with radiation, cisplatin carries a significantly increased risk of synergistic toxicity, most notably nephrotoxicity and peripheral neuropathy. To minimize these risks, the dosage must be carefully adjusted, often being delivered in lower, frequent weekly doses rather than high-dose pulses used in standard systemic therapy. Gemcitabine (Option B) is also used but is a more potent radiosensitizer with a higher risk of local bowel and bladder inflammation (toxicity). Paclitaxel (Option C) and Ifosfamide (Option D) are typically reserved

Question 108. A young male trekker ascending to an altitude of about 5,000 meters suddenly develops severe headache, dizziness, breathlessness, and blurred vision, forcing him to stop climbing. Based on this presentation, which high-altitude–related condition is most likely?

A. Metabolic alkalosis

B. Respiratory alkalosis

C. Respiratory acidosis

D. Metabolic acidosis

Correct answer: B

At a high altitude of 5000 meters, both barometric pressure and the partial pressure of oxygen (PaO_2) are markedly reduced, leading to hypoxia. In response, peripheral chemoreceptors stimulate immediate hyperventilation to increase oxygen uptake. This increased ventilation causes excessive elimination of carbon dioxide ($PaCO_2$), resulting in hypocapnia.

According to the Henderson–Hasselbalch relationship, a fall in $PaCO_2$ raises blood pH, producing respiratory alkalosis.

Metabolic alkalosis (Option A) and metabolic acidosis (Option D) arise from primary disturbances in bicarbonate or fixed acids and are not directly caused by altitude exposure. Respiratory acidosis (Option C) results from hypoventilation with CO_2 retention, which is opposite to the physiological response at high altitude.

Thus, the most likely initial acid–base disturbance at high altitude is acute respiratory alkalosis, a hallmark of early high-altitude illness. Over time, the kidneys compensate by increasing bicarbonate excretion.

Question 109. A J-wave (Osborn wave) on an electrocardiogram is most commonly seen in hypothermia.

A. Hypothermia

B. Heat stroke

C. High-altitude pulmonary edema

D. Drowning

Correct answer: A

A J-wave, also known as an Osborn wave, is a distinct positive deflection seen at the junction of the QRS complex and the ST segment. It is considered the pathognomonic ECG finding for Hypothermia, typically becoming visible when the core body temperature falls below 32°C (≈90°F). Heat stroke (Option B) typically presents with sinus tachycardia and potentially ST-segment changes due to myocardial ischemia, but not J-waves. High-altitude pulmonary edema (Option C) often shows signs of right heart strain, such as R-axis deviation. Drowning (Option D) would only show a J-wave if the water was cold enough to cause systemic hypothermia. The J-wave's amplitude is generally proportional to the severity of the hypothermia. Therefore, identifying this specific waveform is a critical clinical indicator of significant cold-related injury.

Question 110. A man brings his father to the emergency department after he suddenly lost consciousness while working outdoors in extreme heat (42 °C). On examination, there are no obvious signs of dehydration, serum electrolyte levels are normal, and his core body temperature is markedly elevated. In this clinical scenario,

which of the following features is least likely to be observed in this patient?

A. Nausea

B. Hypotension

C. Sweating

D. Headache

Correct answer: C

The patient’s presentation—exposure to extreme environmental heat (42 °C), hyperpyrexia (≥40 °C), and sudden loss of consciousness with normal electrolytes—is highly suggestive of heat stroke, a life-threatening failure of the body’s thermoregulatory mechanisms.

A key clinical feature that distinguishes heat stroke from heat exhaustion is the absence of sweating. In classic heat stroke, failure of the sweat glands leads to skin that is hot, flushed, and dry.

Symptoms such as nausea (Option A), hypotension (Option B), and headache (Option D) are common manifestations of severe heat stress and circulatory compromise and may still be present. However, cessation of sweating reflects late-stage thermoregulatory collapse.

Therefore, sweating (Option C) is the least likely symptom to be present in a patient who has progressed to coma with a core temperature of ≥40 °C.

Question 111. A 24-year-old woman presents with a 3-day history of fever, headache, ataxia, nausea, and vomiting. On examination, she has neck stiffness and a positive Brudzinski’s sign. Lumbar puncture reveals cerebrospinal fluid with a markedly elevated white blood cell count predominantly composed of neutrophils, low glucose levels, and a positive latex agglutination test. Based on these findings, what is the most likely diagnosis?

A. Bacterial meningitis

B. Tubercular meningitis

C. Viral meningitis

D. Fungal meningitis

Correct answer: A

The patient presents with the classic clinical triad of meningitis: fever, headache, and meningeal signs such as Brudzinski’s sign. Cerebrospinal fluid (CSF) analysis is diagnostic and is consistent with acute pyogenic (bacterial) meningitis.

Key CSF findings include a markedly elevated white blood cell count (>1000 cells/mm^3) with

neutrophil predominance and significantly reduced CSF glucose (<40 mg/dL or <50% of blood glucose). In addition, a positive latex agglutination test supports the diagnosis by detecting specific bacterial antigens, commonly Streptococcus pneumoniae or Neisseria meningitidis.

Tubercular meningitis (Option B) and fungal meningitis (Option D) typically show lymphocytic pleocytosis, moderately reduced glucose, and a more subacute or chronic course. Viral meningitis (Option C) is characterized by normal CSF glucose, lymphocytic predominance, and a lower total WBC count.

Therefore, the presence of neutrophilic pleocytosis with low glucose confirms a bacterial etiology, making Option A: Acute bacterial meningitis the definitive diagnosis. Immediate intravenous antibiotic therapy is essential to reduce morbidity and mortality.

Question 112. A 19-year-old woman with type 1 diabetes mellitus presents to the emergency department with confusion, vomiting, and abdominal pain, and is diagnosed with diabetic ketoacidosis. What is the primary treatment to control her elevated blood glucose levels?

A. Regular insulin

B. Lente insulin

C. Glyburide

D. insulin

Correct answer: A

In the acute management of Diabetic Ketoacidosis (DKA), the primary goal of insulin therapy is to stop ketogenesis and gradually normalize blood sugar. Regular (Short-acting) insulin is the only correct choice for initial management in an emergency setting. It is typically administered as a continuous intravenous drip because of its rapid onset and short half-life, allowing for precise titration based on hourly glucose monitoring. Lente insulin (Option B) is an intermediate-acting insulin used for chronic basal control, not for emergencies. Glyburide (Option C) is an oral sulfonylurea that is ineffective in Type 1 diabetes (where there is absolute insulin deficiency) and never used for DKA. insulin (Option D) is a pre-mixed combination used for daily maintenance. Therefore, regular insulin remains the global standard of care for stabilizing patients with DKA to effectively resolve acidosis and hyperglycemia.

166. A patient presents with symptoms and examination findings characteristic of a

particular respiratory disorder. Based on the clinical details provided, what is the condition being described?
(A) Pulmonary tuberculosis
(B) Chronic obstructive pulmonary disease (COPD)
(C) Bronchial asthma
(D) Bronchiectasis

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Question 113. mixed combination used for daily maintenance. Therefore, regular insulin remains the global standard of care for stabilizing patients with DKA to effectively resolve acidosis and hyperglycemia.
A patient presents with symptoms and examination findings characteristic of a particular respiratory disorder. Based on the clinical details provided, what is the condition being described?
A. Pulmonary tuberculosis
B. Chronic obstructive pulmonary disease (COPD)
C. Bronchial asthma
D. Bronchiectasis
Correct answer: D
The provided High-Resolution Computed Tomography (HRCT) image shows advanced lung remodeling characterized by multiple, clustered cystic spaces with thickened walls, often referred to as "honeycombing" or "cystic bronchiectasis". Bronchiectasis is defined by the permanent, pathological dilation of the bronchi. While pulmonary tuberculosis (Option A) can lead to bronchiectasis as a sequela, the HRCT shows a primary pattern of diffuse airway

dilation. COPD (Option B) would typically show hyperinflation and emphysematous destruction (centrilobular or panacinar), but not these discrete, large-walled cysts. Bronchial asthma (Option C) is a functional disorder of the small airways that generally shows a normal HRCT or mild bronchial wall thickening, but not gross cystic cavitation. Therefore, based on the definitive radiological visual of dilated, cyst-like bronchi, bronchiectasis is the condition described. This finding explains symptoms like chronic purulent cough and postural sputum production.

Which of the following statements regarding the management of Non–ST Segment Elevation Myocardial Infarction (NSTEMI) is incorrect?

(A)

An immediate loading dose of aspirin should be administered.

(B)

ACC/AHA guidelines recommend a P2Y12 inhibitor (clopidogrel, prasugrel, or ticagrelor) as a class I recommendation.

(C)

Glycoprotein IIB/IIIA inhibitors are useful adjuncts.

(D)

Fibrinolytic therapy is useful in acute coronary syndrome without ST-segment elevation.

Question 114. Which of the following statements regarding the management of Non–ST Segment Elevation Myocardial Infarction (NSTEMI) is incorrect?

A. An immediate loading dose of aspirin should be administered.

B. ACC/AHA guidelines recommend a P2Y12 inhibitor (clopidogrel, prasugrel, or ticagrelor) as a class I recommendation.

C. Glycoprotein IIB/IIIA inhibitors are useful adjuncts.

D. Fibrinolytic therapy is useful in acute coronary syndrome without ST-segment elevation.

Correct answer: D

In the management of NSTEMI, the pathophysiology involves a partially occlusive thrombus. Fibrinolytic (thrombolytic) therapy (Option D) is strictly contraindicated and considered "incorrect" in this setting because clinical trials have shown it provides no benefit and significantly increases the risk of intracranial hemorrhage without improving coronary flow. In contrast, thrombolytics are only indicated for STEMI. All other statements are correct: an immediate loading dose of aspirin (Option A) is standard to inhibit platelets. P2Y12 inhibitors (Option B) are a Class I recommendation for dual antiplatelet therapy (DAPT). Glycoprotein IIB/IIIA inhibitors (Option C) are valuable adjuncts during percutaneous coronary intervention (PCI) for high-risk patients. Therefore, the recommendation for fibrinolysis is the only inaccurate clinical guideline listed for NSTEMI care.

Question 115. Which medication is the treatment of choice for Legionnaires disease?

A. Vancomycin

B. Azithromycin

C. Streptomycin

D. Erythromycin

Correct answer: B

Legionnaires' disease is a severe form of pneumonia caused by Legionella pneumophila, which is an atypical, intracellular pathogen. Azithromycin (a macrolide) is currently the first-line treatment of choice due to its high intracellular penetration, superior efficacy, and better safety profile compared to older agents. Respiratory fluoroquinolones like levofloxacin are also considered first-line. Vancomycin (Option A) is used for MRSA and has no activity against Legionella. Streptomycin (Option C) is an aminoglycoside used primarily for tuberculosis. Erythromycin (Option D) was historically the first-line treatment, but it is now less preferred because of a higher incidence of gastrointestinal side effects and the need for more frequent dosing compared to the modern macrolide, azithromycin. Therefore, given its pharmacokinetic advantages and clinical success, azithromycin is the definitive treatment of choice for patients with this specific infection.

Question 116. Which of the following conditions

is

characterized by the absence of P waves?

A. Ventricular tachycardia

B. Focal atrial tachycardia

C. Ventricular fibrillation

D. Atrial fibrillation

Correct answer: D

Atrial Fibrillation (AF) is an irregularly irregular rhythm characterized by the complete absence of distinct P waves on the ECG. Instead of organized atrial contraction (represented by a P wave), the atria undergo chaotic "fibrillatory" activity, often seen as a wavy baseline. Ventricular tachycardia (Option A) is a regular wide-complex rhythm where P waves are usually buried or absent, but AF is the classic "absent P wave" diagnosis taught in basic rhythm analysis. Focal atrial tachycardia (Option B) involves a specific ectopic focus and does produce a recognizable, albeit abnormal, P wave. Ventricular fibrillation (Option C) is a pulseless, chaotic rhythm where all complexes (P, QRS, T) are absent, making AF the more specific answer for a rhythm that maintains recognizable QRS complexes without P waves. Therefore, AF is the definitive choice for this clinical hallmark.

SURGERY

Question 117. Identify the fistula labeled below:

A. Vesicocervical fistula

B. Urethrovaginal fistula

C. Ureterovaginal fistula

D. Vesicovaginal fistula

Correct answer: D

The provided anatomical diagram illustrates an abnormal communication (fistula) between the posterior wall of the urinary bladder and the anterior wall of the vagina. This specific connection defines a Vesicovaginal fistula (VVF). VVF is a common obstetric injury in developing nations, typically resulting from prolonged obstructed labor, or it can occur as an iatrogenic complication of gynecological surgery. A Vesicocervical fistula (Option A) would connect the bladder to the cervix. A Urethrovaginal fistula (Option B) connects the urethra to the vagina, located much lower than the bladder neck. A Ureterovaginal fistula (Option C) involves the ureter. Because the diagram clearly marks the "Bladder" as one end and the "Vagina" as the other, the diagnosis is definitively VVF. Patients typically present with continuous, involuntary leakage of urine into the vagina.

Question 118. During

surgical

excision

of
the
left
submandibular gland, the hypoglossal nerve is accidentally injured. As a result of this nerve damage, which specific functional deficit is most likely to be observed in the patient?

A. Deviated tongue to the contralateral side
B. Deviated tongue to the same side
C. Inability to protrude the tongue
D. Loss of taste in the posterior one-third of the tongue

Correct answer: B

The hypoglossal nerve (CN XII) provides motor innervation to the intrinsic and extrinsic muscles of the tongue, most notably the genioglossus. The genioglossus muscle is responsible for protruding the tongue. In a healthy state, both muscles work together to push the tongue straight out. When one hypoglossal nerve is injured (as in this submandibular surgery complication), the genioglossus on the ipsilateral (same) side becomes paralyzed. Consequently, when the patient attempts to protrude their tongue, the unopposed action of the intact genioglossus on the healthy side pushes the tongue toward the side of the lesion. Deviation to the contralateral side (Option A) is not seen in lower motor neuron hypoglossal injuries. Total inability to protrude (Option C) would require bilateral injury. Loss of taste (Option D) is a function of the glossopharyngeal (posterior 1/3) and facial nerves (anterior 2/3), not the hypoglossal. Therefore, ipsilateral tongue deviation is the definitive sign.

Question 119. When preparing a patient for surgery, reducing the risk of surgical site infection (SSI) is essential. With respect to preoperative hair removal at the operative site, which method and timing are considered most appropriate to minimize the risk of SSI?

A. On the operating table (OT) with electric hair clippers
B. With a razor 24 hours before surgery
C. With a hair removal cream on the previous day
D. On the operating table with a razor

Correct answer: A

To minimize the risk of Surgical Site Infection (SSI), global surgical guidelines (including WHO and CDC) strongly recommend that hair should not be removed at all unless it specifically interferes with the procedure. If removal is necessary, it should be done as close to the time of surgery as possible, ideally on the operating table, using electric hair clippers. Clippers are superior because they do not cause microscopic skin nicks or abrasions where bacteria can colonize. Using a razor (Options B and D) 24 hours before or even just before surgery is associated with significantly increased SSI rates due to the creation of these tiny entry points for pathogens. Hair removal creams (Option C) are also less preferred than clipping due to potential skin irritation or allergy. Therefore, the use of clippers immediately before the incision is the current evidence-based gold standard.

Question 120. A patient with splenic trauma is being treated conservatively. Certain findings on contrast-enhanced CT may indicate the need for further intervention, such as angiography. Which of the following CT scan findings would not usually warrant angiography during conservative management of splenic injury?

A. Subcapsular hematoma covering 40% surface area

B. Significant hemoperitoneum

C. Presence of pseudoaneurysm

D. Contrast extravasation

Correct answer: A

In the conservative (non-operative) management of splenic trauma, angiography and embolization are targeted toward signs of active bleeding or vascular instability. Findings such as a pseudoaneurysm (Option C) and active contrast extravasation (Option D) are high-risk indicators of impending or ongoing hemorrhage and almost always require angiography. Significant hemoperitoneum (Option B) can also be a marker for vascular injury requiring intervention. However, a subcapsular hematoma (Option A), even one covering 40% of the surface area (Class II injury), is a localized, contained collection of blood. As long as the patient remains hemodynamically stable, this finding is traditionally managed with strict bed rest and

serial imaging rather than invasive angiography. Therefore, a contained subcapsular hematoma is the "least" concerning vascular finding among the choices provided and does not mandate an immediate angiographic procedure.

Question 121. A 45-year-old man presents to the emergency department with fever and abdominal pain five days after a cholecystectomy, during which an injury to the common bile duct was identified. Imaging studies demonstrate a bile leak originating from the injured site. What is the most appropriate management approach for this postoperative complication?

A. Ultrasound-guided aspiration

B. Endoscopic retrograde cholangiopancreatography (ERCP) and stenting

C. Re-exploration and hepaticojejunostomy

D. Re-exploration and primary repair

Correct answer: B

The patient is experiencing a post-cholecystectomy bile leak. In most cases where a minor injury or leak is identified in the postoperative period, the most appropriate and effective first-line management is Endoscopic Retrograde Cholangiopancreatography (ERCP) and stenting. ERCP allows the clinician to place a stent that bypasses the site of injury and reduces the pressure in the biliary system. This "lowers the resistance" to bile flow, encouraging the leak to close spontaneously. Ultrasound-guided aspiration (Option A) may drain the resulting fluid collection (biloma) but does not fix the source. Re-exploration for primary repair (Option D) or hepaticojejunostomy (Option C) is reserved for severe, major bile duct resections or when endoscopic management fails. For an initial bile leak after a known injury, a minimally invasive endoscopic approach is the standard of care to achieve resolution with less morbidity.

Question 122. A patient presents with a crush injury to the right arm. On examination, the limb is pulseless, markedly swollen, and dark red in color. Based on these findings, what is the most appropriate management for this condition?

A. Intraosseous administration of fluids

B. Acidification of urine

C. Fasciotomy

D. Hemodialysis

Correct answer: C

The patient’s presentation—a crush injury followed by a pulseless, swollen, and dark red limb—is highly indicative of Compartment Syndrome. In crush injuries, excessive pressure builds up within the inelastic fascial compartments of the limb, compromising blood flow and leading to muscle necrosis. This is a surgical emergency. The "best" and definitive way to manage this case is an immediate Fasciotomy (Option C). A fasciotomy involves making long incisions to open the fascia, thereby relieving the pressure and restoring tissue perfusion. Intraosseous fluids (Option A) are for vascular access. Acidification of urine (Option B) is contraindicated; in crush injuries, the goal is alkalinization of urine to prevent myoglobin-induced renal failure. Hemodialysis (Option D) may be needed later if acute kidney injury from rhabdomyolysis occurs, but it does not treat the limb-threatening compartment pressure. Therefore, emergency fasciotomy is the primary life-saving and limb-saving intervention.

Question 123. A 45-year-old man with a history of chronic alcohol use and recent binge drinking presents with an episode of hematemesis involving bright red blood. His vital signs are stable. Upper gastrointestinal endoscopy is performed, and the image is shown. Based on these findings, what is the most probable diagnosis?

A. Tension pneumothorax

B. Boerhaave syndrome

C. Mallory Weiss Tear

D. Gastric ulcer perforation

Correct answer: C

The clinical history of an alcoholic patient with binge drinking followed by hematemesis (vomiting bright red blood) is the classic presentation of a Mallory-Weiss Tear. The provided endoscopic image confirms the diagnosis, showing a longitudinal, linear mucosal laceration at the gastroesophageal junction. These tears result from forceful vomiting or retching. Boerhaave syndrome (Option B) is a more severe, "full-thickness" rupture of the esophagus that presents with severe pain and sepsis, not typically stable vitals and isolated bleeding. Tension pneumothorax (Option A) and gastric ulcer perforation (Option D) are surgical emergencies that present with respiratory distress or "air under the diaphragm" on imaging, rather than primary hematemesis. Because the image shows a superficial mucosal tear specifically at the cardia/GE

junction in a stable patient, Mallory-Weiss Tear is the definitive diagnosis. Most cases heal spontaneously with supportive care.

Question 124. In a woman who has sustained third- and fourth-degree burns over her back, what is the correct sequence of management steps that should be followed during treatment?

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B. Optic neuritis

C. Eale's disease

D. Neuroretinitis

Correct answer: B

The triad of sudden vision loss, pain on eye movements, and a central scotoma in a middle-aged patient is highly characteristic of optic neuritis. The presence of a Relative Afferent Pupillary Defect (RAPD) confirms an optic nerve lesion. Crucially, the finding of an intact optic disc on fundoscopy points specifically to retrobulbar neuritis, where the inflammation occurs behind the globe, sparing the disc from visible edema. Optic nerve glioma (Option A) is a slow-growing tumor of childhood causing progressive, painless proptosis. Eale's disease (Option C) is a peripheral retinal vasculitis causing vitreous hemorrhage. Neuroretinitis (Option D) would show visible disc swelling accompanied by a macular star. Optic neuritis is frequently associated with Multiple Sclerosis. Therefore, because the symptoms localize to the nerve without disc changes, it is the most likely diagnosis.

Question 125. 181. (C) D
The Todani classification is used to categorize bile duct cysts. According to the provided diagram , the Type III choledochal cyst, also known as a choledochocele, is represented by the image labeled D. A Type III cyst is characterized by a focal dilation specifically of the intraduodenal segment of the common bile duct. Type I (Option B/A) involves fusiform dilation of the extrahepatic duct. Type II (Option A/B) is a saccular diverticulum. Type IV (Option D/C) involves multiple cysts in both the intrahepatic and extrahepatic systems. Because the image marked "D" specifically illustrates the cystic dilation within the wall of the duodenum

at the Ampulla of Vater, it corresponds exactly to the definition of a Type III cyst. Accurate classification is essential because the surgical management (ranging from endoscopic sphincterotomy to duct excision) varies significantly depending on the cyst's anatomical type.

Which of the following symptoms represent storage (irritative) symptoms seen in patients with benign prostatic hyperplasia (BPH)?

1.
Urgency

2.
Enuresis

3.
Hesitancy

4.
Frequency

5.
Dribbling

A. 1, 3, 4

B. 2 and 5

C. 1, 2, 4, 5

D. 1, 2, 4

Correct answer: D

Lower urinary tract symptoms (LUTS) in BPH are divided into Storage and Voiding symptoms. Storage symptoms (also called Irritative

symptoms) relate to the bladder's ability to hold urine. These include Frequency (4), Urgency (1), Nocturia, and Enuresis (2). Hesitancy (3) and terminal dribbling (5) are classic "Voiding" (Obstructive) symptoms, as they occur during or at the end of the urinary act due to the enlarged prostate blocking the urethra. Therefore, only options 1, 2, and 4 correctly represent the storage phase of bladder function. Storage symptoms are often the most bothersome to patients, as they interfere with sleep and daily activities. Recognizing this distinction is clinically important because treatment with alpha-blockers helps with voiding, while

Question 126. With respect to long-term patency and durability of grafts used in coronary artery bypass graft (CABG) surgery, which graft material is known to provide the most long-lasting outcomes?

A. Long saphenous vein

B. Internal mammary artery

C. Poly tetra fluoro ethylene (PTFE)

D. Gastroepiploic artery

Correct answer: B

In coronary artery bypass grafting (CABG), the durability of the graft is measured by its long-term patency rate. The Internal Mammary Artery (IMA), specifically the Left Internal Mammary Artery (LIMA), is the gold-standard graft material known for providing the most durable outcomes. IMA grafts have an exceptional 10-year patency rate of over 90% because their arterial wall is resistant to atherosclerosis. The long saphenous vein (Option A) is commonly used for multiple bypasses but has a significant risk of late occlusion, with only about 50% remaining patent after 10 years. PTFE (Option C) is a synthetic material used in peripheral grafts but is unsuitable and prone to failure in small-caliber coronary bypasses. The gastroepiploic artery (Option D) is an alternative arterial graft but is technically difficult and less durable than the IMA. Therefore, the internal mammary artery is the definitive superior choice for longevity.

Question 127. D) deficiency is also common and important, but statistically, iron storage depletion occurs more frequently and earlier in the postoperative

period. Zinc (Option C) and copper (Option B) deficiencies are recognized but are much rarer than iron or Vitamin B12 deficits. Therefore, regular monitoring of hemoglobin and ferritin levels is a mandatory part of post-bariatric surgical follow-up. Patients are typically prescribed lifelong iron supplements to prevent chronic anemia.

An elderly man with a history of Roux-en-Y gastric bypass surgery for obesity presents with episodes of dizziness, fatigue, and tremors occurring about two hours after eating a carbohydrate-rich meal. These postprandial symptoms are most likely caused by which underlying mechanism?

1.
Hypoglycemia

2.
Small volume of food intake

3.
High osmotic load of food

4.
Increased release of insulin

5.
Increased release of glucagon

A. 1, 2, and 5

B. 1, 3, and 5

C. 1 and 4

D. 3 and 5

Correct answer: C

The patient is experiencing Late Dumping Syndrome, a common complication after gastric bypass surgery. Unlike "Early" dumping, which occurs within 30 minutes due to osmotic shifts, Late Dumping occurs 1 to 3 hours after a meal. It is caused by the rapid transit of simple carbohydrates into the small intestine,

triggering an exaggerated and rapid increase in insulin release (4) from the pancreas.
This "overshoot" of insulin leads to reactive hypoglycemia (1), resulting in the characteristic tremors, dizziness, and fatigue. Option 3 (High osmotic load) is the primary cause of Early dumping syndrome. Option 2 (Small volume) and Option 5 (Glucagon) are not the drivers of this reactive metabolic state. Therefore, the specific timing and neuroglycopenic symptoms confirm that reactive hypoglycemia caused by hyperinsulinemia is the responsible mechanism.
Management involves frequent, small, low-carbohydrate meals.

A 25-year-old man presents to the emergency department with features of gastric outlet obstruction, including persistent vomiting. As part of his initial management, which intravenous fluid would be the most appropriate choice?

(A)
Normal saline

(B)
Ringer lactate

(C)
5% dextrose in water

(D)
20% dextrose in water

Question 128. In an elderly patient who has undergone complete surgical excision of a glioblastoma, what should be the next step in management?

A. Chemotherapy with Bevacizumab

B. No further management

C. Chemoradiation

D. Radiotherapy

Correct answer: D

Glioblastoma multiforme (GBM) is a highly aggressive brain tumor, and postoperative management depends on patient factors such as age and performance status.

In elderly patients, especially those who may not tolerate aggressive therapy, the preferred next step after surgical excision is often radiotherapy alone. This is because combined

chemoradiation (Stupp protocol) can be associated with increased toxicity and may not be well tolerated in older individuals.

Radiotherapy helps to:

1.

Control residual microscopic disease

2.

Delay tumor progression

3.

Improve symptoms and survival

Thus, in elderly patients or those with poor functional status, radiotherapy alone is considered appropriate and safer.

Why other options are incorrect:

(A)

Bevacizumab → Used in recurrent GBM

(B)

No further treatment → Incorrect; GBM always requires adjuvant therapy

(C)

Chemoradiation → Standard in younger/fit patients, not always elderly

Question 129. A patient with a previous history of trauma now presents with diplopia, epistaxis, and restricted ocular movements. Based on these clinical features and the findings shown on the CT scan, what is the most likely diagnosis?

A. Le-fort fracture

B. Fracture maxilla

C. Fracture zygomatic

D. Blow out fracture

Correct answer: D

The clinical and radiological findings are pathognomonic for an Orbital Blow-out Fracture. This injury occurs when blunt force to the globe increases intraorbital pressure, causing the thin inferior orbital wall to fracture. The provided CT image shows the definitive "teardrop sign"—the herniation of orbital fat and the inferior rectus muscle into the maxillary sinus. This herniation leads to the patient's limited eye movements (specifically upward gaze) and resultant double vision (diplopia). Epistaxis (nosebleeds) occurs due to the associated fracture of the sinus walls. Le Fort fractures (Option A) involve broader facial bones in specific patterns. Isolated maxillary (Option B) or zygomatic (Option C) fractures would present with different patterns of facial instability. Because the pathology is strictly localized to the floor of the orbit with entrapment of

contents as shown on CT, blow-out fracture is the definitive diagnosis.

Question 130. A patient undergoes an emergency tracheostomy for acute airway obstruction. In the postoperative period, subcutaneous crepitus is noted over the neck and upper chest, consistent with surgical emphysema. Based on this finding, what is the most likely cause of this complication?

A. High tracheostomy

B. Tear in posterior tracheal wall

C. Block in tracheostomy

D. Tight suture around tracheostomy site

Correct answer: A

After an emergency tracheostomy, the presence of subcutaneous emphysema (crepitus over neck and chest) indicates leakage of air into surrounding tissues. One of the most common causes in this setting is a high tracheostomy, where the incision is made too close to the larynx (above the 2nd–3rd tracheal rings).

A high tracheostomy can lead to improper placement of the tube and inadequate sealing of the airway, allowing air to escape into the subcutaneous tissue planes during respiration. This results in surgical emphysema, especially in emergency procedures where anatomical landmarks may be difficult to identify.

Why other options are less appropriate:

(B)

Tear in posterior tracheal wall → Can cause emphysema but is less common

(C)

Block in tracheostomy → Leads to respiratory distress, not air leakage

(D)

Tight suture → Causes local issues, not widespread emphysema

Question 131. In the WHO classification of astrocytoma, which specific grade is glioblastoma categorized as?

A. I

B. II

C. III

D. IV

Correct answer: D

According to the World Health Organization (WHO) classification of tumors of the central nervous system, astrocytomas are graded from I to IV based on their degree of malignancy and histological features. Glioblastoma (previously known as glioblastoma multiforme) is the most

aggressive and lethal form, and it is definitively categorized as Grade IV. Grade I refers to benign, localized tumors like pilocytic astrocytoma. Grade II (Option B) are low-grade diffuse astrocytomas. Grade III (Option C) are anaplastic astrocytomas, which are malignant but less aggressive than glioblastoma. Grade IV tumors like glioblastoma are characterized by high mitotic activity, nuclear atypia, and pathognomonic features such as microvascular proliferation and/or necrosis. These tumors are highly invasive and have a very poor prognosis despite aggressive therapy. Therefore, Grade IV is the standard classification for glioblastoma in both academic and clinical settings.

Question 132. For a woman at 8 weeks of gestation requesting medical termination of pregnancy (MTP), the correct dose of misoprostol via the mucosal route (buccal or sublingual) is 800 micrograms.

A. 200 mcg

B. 600 mcg

C. 400 mcg

D. 800 mcg

Correct answer: D

For medical termination of pregnancy (MTP) up to 9 weeks (63 days) of gestation, the standard pharmacological regimen recommended by the WHO and Indian national guidelines involves a combination of Mifepristone and Misoprostol. After administering 200 mg of Mifepristone orally, the subsequent dose of Misoprostol should be 800 mcg (Option D). This dose is typically administered 24–48 hours later via the vaginal, buccal, or sublingual (mucosal) routes to ensure high efficacy in inducing uterine contractions and expulsion of the products of conception. Doses of 200 mcg (Option A) or 400 mcg (Option C) are insufficient for early MTP and are more commonly used for cervical ripening or labor induction at term. A 600 mcg dose (Option B) is used for the prevention and treatment of postpartum hemorrhage. Therefore, 800 mcg is the definitive standard dose for first-trimester medical abortion.

Question 133. A male patient with a long-standing history of smoking presents with complaints of dysphagia. Based on this clinical scenario, which type of lung cancer is most commonly associated with such a presentation?

A. Squamous cell carcinoma

B. Adenocarcinoma

C. Large cell carcinoma

D. Bronchogenic carcinoma

Correct answer: A

In a male chronic smoker presenting with dysphagia, the clinical suspicion points toward a central lung tumor that is compressing the esophagus. Squamous cell carcinoma (Option A) is the type of lung cancer most strongly associated with smoking and is classically located in a central (hilar) position. Because of its central location, it is the most likely subtype to cause extrinsic compression of the esophagus, leading to the patient's difficulty swallowing. Adenocarcinoma (Option B) is the most common lung cancer overall but is typically located peripherally and is less specifically linked to heavy smoking compared to the squamous type. Large cell carcinoma (Option C) is also often peripheral. "Bronchogenic carcinoma" (Option D) is a general term for all primary lung cancers rather than a specific pathological subtype. Therefore, given the specific combination of smoking history and central compressive symptoms, Squamous cell carcinoma is the expected predominant diagnosis.

Question 134. Which of the following is used in the management of prostate cancer?

A. Gleason score

B. Bethesda score

C. Alvarado score

D. Nottingham score

Correct answer: A

The Gleason score is a critical grading system used to determine the aggressiveness of prostate cancer. It is calculated by examining biopsy samples under a microscope and assigning a grade to the two most common architectural patterns of the cancer cells, with the sum providing the total score. A higher Gleason score indicates a more poorly differentiated tumor that is likely to grow and spread faster. The Bethesda score (Option B) is primarily utilized for reporting thyroid cytopathology. The Alvarado score (Option C) is a clinical scoring system used to assist in the diagnosis of acute appendicitis based on symptoms, signs, and laboratory findings. The Nottingham score (Option D), also known as the Elston-Ellis modification of the Scarff-Bloom-Richardson system, is the standard grading method for breast cancer. Therefore, the Gleason score is the only tool listed specific to the pathological management and prognosis of prostate cancer.

Question 135. After starting CPR on a person who has collapsed following a road traffic accident and once the rescue team arrives, what is the most appropriate next action to take?

A. Continue 5 rounds of CPR @ 30:2 followed by application of an AED

B. Continue CPR while the team applies AED paddles

C. Stop CPR and let them apply paddles

D. Handover the patient and leave

Correct answer: B

In advanced cardiac life support, minimizing interruptions in chest compressions is vital for maintaining coronary and cerebral perfusion pressure. When a rescue team arrives with an Automated External Defibrillator (AED) while a bystander is performing CPR, the rescuer should continue high-quality chest compressions without stopping while the team prepares the device and applies the paddles or pads to the patient’s chest. Stopping CPR prematurely (Option C) reduces the chances of successful resuscitation. Waiting to complete exactly five rounds (Option A) is unnecessary if the AED is ready for immediate use, as early rhythm analysis is prioritized. Simply handing over and leaving (Option D) is inappropriate until a formal transfer of care is complete and the rescuer is no longer needed to assist. The core principle is that compressions should only pause when the AED explicitly prompts "analyzing" or "clear for shock" to maximize the patient's survival probability.

Question 136. Following an emergency tracheostomy performed in a non-hospital setting, what is the most likely cause of the development of surgical emphysema?

A. Puncture of the posterior wall

B. High tracheostomy

C. Blockage of the tube

D. Tight suture

Correct answer: B

Surgical emphysema following an emergency tracheostomy, especially in a non-hospital setting, is most commonly due to a high tracheostomy. Normally, a tracheostomy is performed at the level of the 2nd–3rd tracheal rings. However, in emergency situations, improper identification of anatomical landmarks may lead to an incision being made too high, near the cricoid cartilage or larynx.

A high tracheostomy can result in poor positioning of the tracheostomy tube and an inadequate seal between the airway and surrounding tissues. As a result, air escapes from the trachea into the subcutaneous tissues of the neck and chest, producing surgical emphysema, which is felt as crepitus on palpation.

This complication is particularly common in non-hospital or emergency settings, where procedures are performed rapidly with limited equipment and expertise.

Why other options are incorrect:

(A)

Posterior wall puncture → Possible but less commonly expected in exams

(C)

Tube blockage → Causes respiratory distress

(D)

Tight suture → Leads to local tissue problems

Question 137. Which of the following features is not included in the American Association for the Surgery of Trauma (AAST) classification system for grading splenic injuries?

A. Parenchymal destruction

B. Vascular involvement

C. Adjacent organ involvement

D. Hematoma

Correct answer: C

The AAST splenic injury scale is used to categorize the severity of trauma to the spleen based on specific anatomical and radiological findings. Its primary components include the depth and extent of parenchymal destruction or laceration (Option A), the presence and size of a subcapsular or intraparenchymal hematoma (Option D), and the degree of vascular involvement (Option B), such as active hemorrhage or hilar devascularization. While adjacent organ involvement (Option C) is a critical factor in the overall management of a trauma patient and determines the comprehensive injury severity score, it is NOT a specific component used to grade the injury to the spleen itself within the AAST organ-specific classification. The AAST system focuses strictly on the intrinsic damage to the splenic tissue and its immediate blood supply. Understanding this distinction is important for surgeons to accurately stage injuries and decide between non-operative management and surgical intervention like splenectomy.

Question 138. During the first trimester of pregnancy, propylthiouracil (PTU) is considered the safer medication for managing hyperthyroidism, as it has a lower risk of teratogenic effects compared to methimazole.

A. Propylthiouracil

B. Methimazole

C. Carbimazole

D. Radioactive iodine

Correct answer: A

Managing hyperthyroidism during pregnancy requires a careful balance between maternal health and fetal safety. During the first trimester, Propylthiouracil (PTU) is the preferred and safer medication of choice (Option A). PTU is favored because it is more highly protein-bound and crosses the placenta less readily than other options, and it is less associated with major congenital malformations. In contrast, Methimazole (Option B) and its prodrug Carbimazole (Option C) are associated with a higher risk of "methimazole embryopathy," including defects like aplasia cutis and choanal or esophageal atresia when used in early pregnancy. Radioactive iodine (Option D) is strictly contraindicated during pregnancy as it can destroy the fetal thyroid gland and is potentially teratogenic. Many clinicians switch patients from Methimazole to PTU during the first trimester and then back to Methimazole for the remainder of the pregnancy to avoid PTU-induced maternal hepatotoxicity.

Question 139. For a female patient planned for laparoscopic surgery, what is the most appropriate pre-operative instruction that should be given?

A. Eat fully before surgery

B. Drink plenty of water before surgery

C. Enema on the night before surgery

D. NPO for specific hours before surgery

Correct answer: D

The most critical pre-operative instruction for a patient undergoing general anesthesia for laparoscopic surgery is to remain NPO (nil per os), meaning nothing by mouth, for a specific period (Option D). Standard guidelines usually mandate fasting from solids for at least 6–8 hours and clear liquids for 2 hours before the procedure. This is essential to minimize the volume of gastric contents, thereby reducing the risk of pulmonary aspiration during induction and the procedure itself. Instructions to eat fully (Option A) or drink plenty of water (Option B) just before surgery are dangerous and would lead to cancellation of the case. While bowel preparation or an enema (Option C) was historically routine, it is no longer standard for all laparoscopic surgeries unless specifically indicated for bowel-involved procedures. Therefore, adhering to strict fasting protocols is the primary safety requirement for pre-anesthetic preparation.

Question 140. When a family member volunteers to donate blood for a patient injured in a road traffic accident, which of the following tests is not routinely required before proceeding with the blood transfusion?

A. Hepatitis A

B. Hepatitis B

C. Hepatitis C

D. HIV 1 & 2

Correct answer: A

To ensure the safety of the blood supply, all donated blood must undergo rigorous mandatory screening for major transfusion-transmitted infections. Standard screening protocols include testing for Hepatitis B surface antigen (HBsAg) (Option B), Hepatitis C virus (HCV) antibodies (Option C), and HIV types 1 and 2 antibodies or p24 antigen (Option D). Additionally, screening for syphilis and malaria is typically required. Hepatitis A (Option A) is NOT typically tested in routine pre-transfusion protocols. The Hepatitis A virus is primarily transmitted through the fecal-oral route, has a very short-lived viremic phase, and does not cause a chronic carrier state. Because the risk of transmission through blood products is negligible compared to the chronic, blood-borne nature of HBV, HCV, and HIV, it is not a part of mandatory blood safety testing. Thus, Hepatitis A is the correct "except" choice for routine donor screening.

PEDIATRICS

Question 141. A 6-month-old infant is brought to the outpatient department with a deformity visible in the accompanying image. Based on this clinical presentation, what would be the appropriate line of management for this child?

A. Manipulation and cast

B. Posteromedial soft tissue release

C. Triple arthrodesis

D. Evan's procedure

Correct answer: A

The image displays Congenital Talipes Equinovarus (CTEV), also known as clubfoot. The gold standard for initial management of CTEV, especially in an infant as young as 6 months old, is the Ponseti method. This involves gentle serial manipulation and casting (Option A) started ideally within the first few weeks of life to progressively correct the four components of the deformity: cavus, adductus, varus, and equinus. If the child is already 6 months old and has not been treated, Ponseti casting remains the primary first-line therapy. Surgical options like posteromedial soft tissue release (Option B) are now reserved for cases that fail conservative casting. Evan’s procedure (Option D) is used for children between 4 and 8 years of age. Triple arthrodesis (Option C) is a radical corrective surgery for skeletal maturity, typically performed after 10–12 years of age. Therefore, conservative manipulation and casting is the definitive

starting point.

Question 142. Based on the MRI findings, identify the medical condition seen in the lower back of the newborn that presents as an abnormal lump.

Examination Paper June 2022 Question

A. Meningocele

B. Myelomeningocele

C. Spina bifida occulta

D. Bone cyst

Correct answer: A

The MRI shows a cystic swelling in the lumbosacral region of a newborn that appears well-defined and fluid-filled (bright on T2-weighted image). Importantly, there is no evidence of neural tissue (spinal cord or nerve roots) within the sac. This finding is characteristic of a meningocele.

In meningocele, there is herniation of meninges filled with cerebrospinal fluid (CSF) through a vertebral defect, but the spinal cord remains in its normal position. Clinically, it presents as a soft, fluctuant swelling over the lower back and may have minimal or no neurological deficits.

Why other options are incorrect:

(B)

Myelomeningocele → Would show neural elements inside the sac (neural placode), which is not seen

(C)

Spina bifida occulta → No external swelling; only bony defect

(D)

Bone cyst → Intraosseous lesion, not a CSF-filled sac

Question 143. Which among the following radioactive isotopes is not employed in brachytherapy?

A. Iodine-125

B. Iodine-131

C. Cobalt-60

D. Iridium-192

Correct answer: B

Brachytherapy is a form of radiation therapy where a radioactive source is placed directly inside or next to the tumor. Common isotopes used for this purpose include Iridium-192 (Option D), which is frequently used for high-dose-rate brachytherapy, and Iodine-125 (Option A) or Palladium-103, which are used as permanent "seeds" for prostate cancer. Cobalt-60 (Option C)

was historically used in both external beam therapy and brachytherapy applications. Iodine-131 (Option B), however, is NOT typically used for brachytherapy. Instead, it is used for "systemic" radionuclide therapy, specifically for the treatment of hyperthyroidism and differentiated thyroid cancer, where it is ingested or injected and concentrates naturally in thyroid tissue. Brachytherapy relies on sealed sources to deliver localized radiation, whereas I-131 is an unsealed liquid source used for systemic metabolic uptake. Thus, Iodine-131 is the correct "not employed" choice among the options provided.

Question 144. A 10-month-old male infant is noted to have an empty scrotum on clinical examination. Ultrasonography reveals that the right testis is located in the right inguinal canal, while the left testis is situated in the perineum. Based on these findings, comment on the diagnosis of this child.

A. Bilateral undescended testis

B. Bilateral ectopic testis

C. Right side undescended testis and left sided ectopic testis

D. Right side ectopic testis and left side undescended testis

Correct answer: C

This clinical scenario requires a distinction between undescended and ectopic testes. An undescended testis (cryptorchidism) is one that has stopped somewhere along its normal path of descent (the gubernaculum's path), most commonly in the inguinal canal. Since the right testis is in the inguinal canal, it is classified as undescended. An ectopic testis, in contrast, has strayed from the normal path and is located in an abnormal position such as the perineum, femoral canal, or superficial inguinal pouch. Because the left testis is in the perineum, it is definitively an ectopic testis. Therefore, Option C accurately describes the bilateral findings. Option A is incorrect because the perineum is an abnormal site, and Option B is incorrect because the inguinal canal is on the normal path. Option D reverses the findings. Understanding this difference is important for planning surgical orchidopexy.

Question 145. In a 3-day-old neonate presenting with abdominal distension and bilious vomiting, which of the following investigations would be the most appropriate to establish the diagnosis?

A. CECT abdomen

B. Barium meal

C. Barium meal follow through

D. Barium swallow

Correct answer: A

A 3-day-old neonate with abdominal distension and bilious vomiting suggests a serious intestinal obstruction, most notably malrotation with midgut volvulus. This is a life-threatening surgical emergency that requires rapid and accurate diagnosis.

CECT abdomen (contrast-enhanced CT scan) provides detailed cross-sectional imaging of abdominal structures and is highly useful in identifying:

1.

Whirlpool sign (twisting of mesenteric vessels in volvulus)

2.

Site and cause of obstruction

3.

Associated complications such as ischemia

Thus, in this context, CECT can help in quick and definitive diagnosis, especially when clinical suspicion is high.

Why other options are incorrect:

(B)

Barium meal → May delay diagnosis and carries aspiration risk

(C)

Barium follow through → Time-consuming

(D)

Barium swallow → Evaluates esophagus only

Question 146. A 4-year-old boy presents to the pediatric emergency department with a 5-day history of low-grade fever, inspiratory stridor, and a characteristic barking cough. On examination, he has a hoarse voice, moderate pharyngeal congestion, and mild tachypnea. A chest X-ray shows subglottic narrowing with the classic steeple sign, consistent with croup. In this clinical scenario, which of the following treatment options is not recommended?

A. Nebulized racemic epinephrine

B. Parenteral cefotaxime

C. Helium oxygen mixture (Heliox)

D. Intramuscular dexamethasone

Correct answer: B

The clinical presentation and the radiographic "steeple sign" are diagnostic of Croup (Laryngotracheobronchitis), which is a viral respiratory infection most commonly caused by parainfluenza virus. Because the etiology is viral, parenteral antibiotics like cefotaxime (Option B) are NOT recommended and have no role in standard croup management unless a secondary bacterial infection is suspected. Standard treatments include nebulized racemic epinephrine (Option A) for rapid reduction of mucosal edema and intramuscular or oral dexamethasone (Option D) to provide longer-lasting anti-inflammatory effects. Heliox (Option C) can be used in severe cases to reduce turbulent airflow and the work of breathing. In contrast, bacterial tracheitis or epiglottitis would require antibiotics, but the "barking cough" and "steeple sign" specifically confirm croup. Therefore, unnecessary antibiotics are the incorrect choice in this setting.

Question 147. Based on the combination of colicky abdominal pain, palpable purpura over the buttocks and extensor surfaces, and renal involvement (proteinuria with microscopic hematuria) in a 7-year-old child, the most likely diagnosis is Henoch–Schönlein purpura (IgA vasculitis).

A. Systemic lupus erythematosus

B. Henoch-Schönlein purpura

C. Post-streptococcal glomerulonephritis

D. Hemolytic uremic syndrome

Correct answer: B

The combination of a characteristic palpable purpuric rash (on buttocks and lower limbs), cramping abdominal pain, and signs of renal involvement (hematuria and proteinuria) in a young child is the hallmark presentation of Henoch-Schönlein Purpura (HSP). HSP is an IgA-mediated small-vessel vasculitis that often follows a viral upper respiratory infection. Systemic lupus erythematosus (Option A) is much less common in a 7-year-old and typically presents with a malar rash and multi-organ involvement. Post-streptococcal glomerulonephritis (Option C) presents with acute nephritic syndrome (hematuria/hypertension) following a throat infection but lacks the systemic purpuric rash and abdominal pain. Hemolytic uremic syndrome (Option D) is characterized by a triad of microangiopathic hemolytic anemia, thrombocytopenia, and acute renal failure, usually following bloody diarrhea. Given the classic rash distribution and clinical tetrad, HSP is the definitive diagnosis.

Question 148. During a routine OPD visit, a 3-year-old child’s growth chart is reviewed and shows a Body Mass Index (BMI) between the 85th and 95th

percentile for age and sex. How would you classify the nutritional status of this child?

A. Moderate wasting

B. Severe acute malnutrition

C. Overweight

D. Obese

Correct answer: C

Nutritional status in children over the age of 2 is typically assessed using BMI-for-age growth charts. According to standardized CDC and WHO definitions, a child is categorized as overweight if their BMI is between the 85th and 95th percentile (Option C). If the BMI is at or above the 95th percentile, the child is categorized as obese (Option D). Moderate wasting (Option A) and Severe Acute Malnutrition (Option B) are categories used for children with low weight-for-height or low mid-upper arm circumference, representing undernutrition rather than excess weight. Identifying a child in the overweight category is important for implementing early lifestyle interventions to prevent progression to obesity and associated metabolic complications later in childhood. Therefore, based on the percentile range provided, overweight is the correct nutritional classification.

Question 149. A mother is concerned that her child is not eating well. Her 15-month-old son is found to have a length that is 2 standard deviations below the median for his age. Based on this finding, what is the most likely diagnosis?

A. Acute malnutrition

B. Severely wasting

C. Moderately underweight

D. Moderate stunting

Correct answer: D

In pediatric anthropometry, stunting is defined as a deficit in height (or length)-for-age. According to WHO growth standards, a child whose length is between -2 and -3 standard deviations (SD) below the median is classified as having moderate stunting (Option D). Stunting is typically a marker of chronic, long-term undernutrition or recurrent infections. Acute malnutrition (Option A) and wasting (Option B) are defined by a low weight-for-height ratio, representing recent or sudden weight loss. Being underweight (Option C) refers to a low weight-for-age, which can be a composite of both stunting and wasting. Because the mother's concern specifically relates to a deficit in "length" rather than "weight," stunting is the correct descriptive term for this child's nutritional deficit. Managing this involves ensuring adequate nutrient-dense complementary feeding.

Question 150. A 1½-year-old child presents to the emergency department with breathlessness, cough, cold, and a temperature below 37 °C. On examination, the respiratory rate is 46 breaths per minute, and there are no signs of chest indrawing or other danger signs. What is the most appropriate management for this child?

A. Administer IV antibiotics and observe

B. Administer IV antibiotics and refer to a higher center

C. Administer oral antibiotics, warn of danger signs, and send home

D. Administer only home remedies

Correct answer: C

According to the IMCI (Integrated Management of Childhood Illness) guidelines, the classification of pneumonia depends on the respiratory rate and presence of "danger signs". For a child aged 12–59 months, fast breathing is defined as a respiratory rate 40 breaths per minute. Since this 18-month-old child has a rate of 46 but NO chest indrawing or other danger signs, they are classified as having "Pneumonia" (not "Severe Pneumonia"). The appropriate management for non-severe pneumonia is treatment with oral antibiotics (typically amoxicillin) for 5 days. The child can be managed at home (Option C) after the mother is taught about danger signs that require immediate return. IV antibiotics (Options A and B) are reserved for "Severe Pneumonia" where there is chest indrawing or inability to drink. Home remedies alone (Option D) are insufficient for bacterial pneumonia.

Question 151. The most common cause of seizures in a 2-year-old child is febrile seizures, which typically occur between 6 months and 5 years of age and are associated with a rapid rise in body temperature due to infection.

A. Trauma to the head

B. Malnutrition

C. Febrile seizures

D. Neurological deficit

Correct answer: C

In the pediatric population between the ages of 6 months and 5 years, febrile seizures are the most common cause of convulsive episodes (Option C). These are seizures triggered by a rapid rise in body temperature, usually associated with common childhood viral infections, in the

absence of an intracranial infection or metabolic imbalance. While head trauma (Option A), severe malnutrition (Option B), and underlying neurological deficits (Option D) are important causes of symptomatic seizures, they are statistically much less frequent than simple febrile convulsions in this specific age group. Most febrile seizures are generalized, brief, and carry an excellent prognosis without the need for long-term antiepileptic therapy. Clinicians must focus on ruling out meningitis and managing the underlying fever. Therefore, given the 2-year-old age mark, febrile seizures remain the most prevalent etiology.

Question 152. A 5-year-old boy is brought to the emergency department with a sudden onset of severe sore throat and breathing difficulty that began a few hours earlier. His condition has rapidly worsened, and he is now sitting upright in a tripod position, drooling excessively, appearing anxious, and speaking in a muffled voice. He has a high-grade fever (103.1°F) and noisy breathing with inspiratory stridor on examination. Based on this clinical presentation, what is the most likely causative organism?

A. Respiratory syncytial virus

B. Influenza virus

C. Parainfluenza virus

D. Newcastle disease virus

Correct answer: B

The child presents with sudden onset high fever, severe sore throat, drooling, inspiratory stridor, muffled voice, and tripod position, which are classic features of acute epiglottitis, a life-threatening upper airway obstruction. The condition progresses rapidly and requires urgent airway management.

The most common causative organism of epiglottitis is Haemophilus influenzae type b (Hib), a bacterium. However, since this option is not provided, the closest correct answer among the given options is Influenza virus, which can cause severe upper respiratory tract infections and may be associated with similar clinical presentations or secondary bacterial infection.

Why other options are incorrect:

(A)

Respiratory syncytial virus (RSV) → Causes bronchiolitis, mainly affecting lower airways

(C)

Parainfluenza virus → Causes croup, which presents with barking cough and gradual onset

(D)

Newcastle disease virus → Primarily affects birds, not humans

ORTHOPEDICS

Question 153. A patient presents with pain and swelling over the anatomical snuffbox after a fall on an outstretched hand. Based on the findings shown in the accompanying image, which fracture is most likely present?

A. Colles fracture

B. Scaphoid fracture

C. Galeazzi fracture

D. Smith fracture

Correct answer: B

The clinical presentation of tenderness specifically in the anatomical snuffbox following a fall on an outstretched hand is the classic sign of a scaphoid fracture (Option B). The scaphoid is the most commonly fractured carpal bone. The provided X-ray confirms a fracture line through the waist of the scaphoid. A Colles fracture (Option A) is a fracture of the distal radius with dorsal displacement. A Smith fracture (Option D) is also a distal radius fracture but with volar (ventral) displacement. A Galeazzi fracture (Option C) involves a distal radius fracture accompanied by dislocation of the distal radioulnar joint. Scaphoid fractures are notorious for their risk of non-union and avascular necrosis due to their retrograde blood supply. Therefore, clinical snuffbox tenderness mandates scaphoid-specific radiographs and management, typically in a thumb spica cast.

Question 154. After falling from a height onto his outstretched hand, a man is brought to the emergency department. Radiographic evaluation reveals a fracture of the clavicle. Which part of the clavicle is most commonly involved in such fractures?

A. Junction of medial 2/3rd and lateral 1/3rd

B. Junction of medial 1/3rd and lateral 2/3rd

C. Junction of middle 1/3rd and medial 1/3rd

D. Middle of the clavicle

Correct answer: A

The clavicle is one of the most frequently fractured bones in the body, typically resulting from direct trauma or a fall on an outstretched hand. Statistically, the junction of the medial two-thirds and the lateral one-third (Option A) is the most common site of fracture. This region represents the anatomical weakest point of the bone, where the curvature changes and the bone is least reinforced by ligaments or muscle attachments. Approximately 80% of all clavicle

fractures occur in this mid-shaft region. Fractures of the medial third (Option B and C) are relatively rare, often involving high-energy trauma. While the fracture is often described as being in the "middle" (Option D), the precise and medically standardized answer for the site of maximum weakness is the junction described in Option A. These fractures are usually managed conservatively with a broad-arm sling or a figure-of-eight bandage.

Question 155. A patient presents with swelling of the metacarpophalangeal (MCP) joints and is found to have elevated serum uric acid levels. The physician initiates first-line therapy for this condition. What is the mechanism of action of the drug prescribed?

A. Pyrimidine antimetabolite

B. Inhibitor of neutrophil recruitment

C. Uricosuric drug

D. Xanthine oxidase inhibitor

Correct answer: D

The patient’s presentation of joint swelling combined with high serum uric acid levels is diagnostic of gout. While NSAIDs or colchicine are used for the acute flare, the "initial" and most common first-line treatment for the long-term management of hyperuricemia is Allopurinol. The mechanism of action of Allopurinol is that of a xanthine oxidase inhibitor (Option D). It works by blocking the enzyme responsible for converting hypoxanthine to xanthine and xanthine to uric acid, thereby lowering the systemic levels of urate. A pyrimidine antimetabolite (Option A) refers to drugs like 5-fluorouracil used in chemotherapy. Colchicine acts as an inhibitor of neutrophil recruitment (Option B) and is used for acute attacks, not primary urate-lowering. Uricosuric drugs (Option C), such as probenecid, increase the renal excretion of uric acid but are generally second-line. Thus, xanthine oxidase inhibition is the definitive standard.

OBS & GYNE

Question 156. Which contraceptive device has the longest duration of effectiveness?

A. Progestasert

B. CuT 380 A

C. Mirena

D. Nova T

Correct answer: B

The Copper T 380 A (Option B) is one of the most effective and long-lasting forms of reversible contraception. It is FDA-approved for 10 years of continuous protection, which is the longest duration among the devices listed. Progestasert (Option A) was an early progesterone-releasing

IUD that required replacement every year. Mirena (Option C), a levonorgestrel-releasing intrauterine system (LNG-IUS), is approved for 5 to 8 years of use depending on the specific clinical indication and regional guidelines. The Nova T (Option D) is a copper-containing IUD with a typical effective duration of 5 years. Because the CuT 380 A contains a larger amount of copper wire and sleeves (380) than other models, it provides the most durable long-term prevention of pregnancy, making it a highly cost-effective option for women seeking long-term birth control.

Question 157. A 28-year-old woman presents with infertility and complains of dysmenorrhea along with chronic pelvic pain. She has a history of recurrent pelvic inflammatory disease. A hysterosalpingogram reveals absence of peritoneal spill from the right fallopian tube. Based on these findings, what is the most likely diagnosis?

A. Tubal block

B. Endometriosis

C. Asherman syndrome

D. Bilateral hydrosalpinx

Correct answer: A

The patient’s history of recurrent pelvic inflammatory disease (PID) is a major risk factor for tubal factor infertility. PID causes inflammation that leads to scarring and adhesions within the fallopian tubes. The definitive finding on the hysterosalpingogram (HSG)—the "absence of peritoneal spillage"—is the hallmark radiological indicator of a tubal block (Option A). This means the contrast medium could not pass through the tube into the pelvic cavity. While endometriosis (Option B) can cause pelvic pain and infertility, it is typically diagnosed via laparoscopy and would not necessarily show a complete blockage on HSG. Asherman syndrome (Option C) involves intrauterine adhesions, which would show filling defects in the uterus on HSG. Bilateral hydrosalpinx (Option D) involves fluid-filled, dilated tubes on both sides, whereas the HSG only noted an issue with the "right" tube. Therefore, a unilateral tubal block is the most likely diagnosis.

Question 158. Which of the following is NOT typically used for antenatal screening?

A. Cord blood

B. Amniotic fluid

C. Chorionic villi

D. Peripheral lymphocytes

Correct answer: A

In the context of antenatal screening and diagnosis, we categorize tests by the source of fetal genetic material. While (A), (B), and (C) are standard sources of fetal cells, peripheral lymphocytes from the mother are not used because they belong to the mother, not the fetus.

Why (D) is the Correct Answer:

Antenatal screening for genetic disorders (like Down Syndrome) requires fetal DNA. While modern Non-Invasive Prenatal Testing (NIPT) uses maternal blood, it analyzes cell-free fetal DNA (cffDNA) floating in the plasma, not the mother's own peripheral lymphocytes. Lymphocytes are part of the maternal immune system and do not carry the fetal genetic blueprint.

Why the other options are used:

(A)

Cord blood: Obtained via cordocentesis (after 18 weeks), it provides rapid fetal karyotyping and is used to screen for fetal anemia or infections.

(B)

Amniotic fluid: Obtained via amniocentesis (15–20 weeks), it contains shed fetal cells (amniocytes) used for definitive chromosomal analysis.

(C)

Chorionic villi: Obtained via CVS (10–13 weeks), these placental tissues share the same genetic makeup as the fetus and are excellent for early screening of metabolic or genetic defects.

Question 159. A 24-year-old woman presents to an infertility clinic with a history of recurrent pregnancy losses and is diagnosed with a septate uterus. Which corrective procedure is associated with the best obstetric outcomes in this condition?

A. Jones metroplasty

B. Strassman metroplasty

C. Tompkins metroplasty

D. Transcervical resection of septum

Correct answer: D

A septate uterus is a congenital uterine anomaly associated with the highest risk of recurrent pregnancy loss. The modern "gold standard" procedure that yields the most favorable obstetric outcomes with the least morbidity is Hysteroscopic Transcervical Resection of the Septum (TCRS) (Option D). This minimally invasive technique involves using a hysteroscopic resectoscope or scissors to divide the septum without making an incision in the abdominal or uterine wall. This allows for a shorter recovery time and, most importantly, allows the patient to attempt a vaginal delivery in the future. In contrast, Jones (Option A) and Tompkins (Option C) metroplasties are older, invasive abdominal surgeries that require a Cesarean section for all

subsequent deliveries. Strassman metroplasty (Option B) is specifically utilized for the correction of a bicornuate uterus rather than a septate uterus. Therefore, hysteroscopic resection is the definitive contemporary choice.

Question 160. A woman with a history of missed abortion subsequently develops amenorrhea, despite having a negative urine pregnancy test. Hysterosalpingography shows the abnormality illustrated in the provided image. Based on these findings, what is the most likely diagnosis?

A. Pyometra

B. Endometriosis

C. Asherman syndrome

D. Sheehan syndrome

Correct answer: C

The clinical history of secondary amenorrhea following a pregnancy-related procedure (like curettage for a missed abortion) is highly suggestive of Asherman syndrome (Option C). Asherman syndrome is characterized by the formation of intrauterine adhesions or synechiae that obliterate the uterine cavity. The provided hysterosalpingogram (HSG) confirms this diagnosis, showing characteristic irregular filling defects and a diminished, jagged uterine cavity where the contrast cannot flow smoothly. Pyometra (Option A) involves an accumulation of pus in the uterus, usually presenting with pain and fever. Endometriosis (Option B) involves extra-uterine implants and would not show these specific intra-cavity HSG defects. Sheehan syndrome (Option D) is a form of pituitary necrosis following postpartum hemorrhage that causes amenorrhea through hormonal failure, but the HSG in Sheehan’s would show a normal uterine cavity. Therefore, the structural scarring seen on HSG confirms Asherman’s.

Question 161. A 65-year-old woman presents with vaginal bleeding 10 years after attaining menopause and has no significant past medical history. What is the most common cause of postmenopausal bleeding in this patient?

A. Cervical cancer

B. Decubitus Ulcer

C. Tubercular Endometritis

D. Hormone replacement therapy

Correct answer: A

A 65-year-old woman with postmenopausal bleeding (PMB) must always be evaluated for malignancy.

Although endometrial atrophy is the most common cause worldwide, it is not given in the options. In Indian exam context, the most important and commonly emphasized cause of PMB is carcinoma cervix.

Cervical cancer is highly prevalent in India and often presents with:

1.

Postmenopausal bleeding

2.

Postcoital bleeding (most common presentation)

3.

Foul-smelling discharge

Because of its high incidence and clinical importance, examiners frequently consider it the most likely cause of PMB when atrophy is not listed.

Why other options are incorrect:

(B)

Decubitus ulcer → Rare, associated with prolapse

(C)

Tubercular endometritis → Uncommon cause

(D)

Hormone replacement therapy → Recognized cause but less common than malignancy

Examination Paper June 2022 Question

Question 162. Pelvic organ prolapse often involves multiple compartments simultaneously. A cystocele (bladder prolapse) represents a defect in the anterior vaginal wall, while a rectocele (rectum prolapse) represents a defect in the posterior wall. To comprehensively repair the pelvic floor in a patient with both these conditions along with vault prolapse, the most optimal surgical approach is to perform both anterior colporrhaphy and posterior colpoperineorrhaphy (Option C). Anterior colporrhaphy (Option A) specifically reinforces the anterior wall to correct the cystocele. Posterior colpoperineorrhaphy (Option

B)

reinforces the posterior wall and the perineal body to correct the rectocele. A hysterectomy (Option D) addresses uterine prolapse but will not fix the underlying fascial defects of the bladder or rectum on its own. Therefore, a combined multi-compartment repair is necessary to achieve a successful functional and anatomical outcome for the patient.

The normal placenta is -

1.

Discoid

2.

Hemochorial

3.

Deciduate

A. 1 & 2

B. 2 & 3

C. 1 & 3

D. 1, 2 and 3

Correct answer: D

Human placental anatomy and physiology are described by several specific biological terms. First, it is discoid (1), meaning it is a flat, circular, disc-shaped organ. Second, it is deciduate (3), which means that upon delivery, a portion of the maternal uterine lining (the decidua) is shed along with the placenta. Third, it is classified as hemochorial (2), which is the most intimate type of placental barrier where the maternal blood comes into direct contact with the fetal chorionic villi. Because the human placenta possesses all three of these definitive characteristics, Option D (1, 2, and 3) is the correct and comprehensive answer.

Understanding these terms

is
fundamental in embryology and obstetrics to
describe the efficient exchange of nutrients and
gases between the mother and the developing
fetus. Options A, B, and C are incomplete as
they omit one of these essential descriptors.
Ureteric injury is most commonly observed in which population?
(A)
Vaginal hysterectomy
(B)
Wertheim's hysterectomy
(C)
Abdominal hysterectomy
(D)
Emergency Caesarean section

Question 163. Ritodrine is a medication primarily used to prevent premature labor. Which of the following is NOT a typical maternal complication associated with its use?

A. Tremors
B. Tachycardia
C. Hypoglycemia
D. Pulmonary edema

Correct answer: C

Ritodrine is a beta-2 adrenergic agonist used as a tocolytic to suppress uterine contractions in preterm labor. Due to its systemic beta-adrenergic effects, it is associated with several well-known maternal complications. These include fine skeletal muscle tremors (Option A), significant tachycardia and palpitations (Option B), and potentially life-threatening pulmonary edema (Option D), especially when used with corticosteroids or excessive IV fluids. Notably, the metabolic effect of ritodrine is to increase blood sugar levels through glycogenolysis; therefore, it causes hyperglycemia, NOT hypoglycemia (Option C). Hypoglycemia is the correct "NOT" choice as it is the opposite of the expected physiological response to beta-agonists. Clinicians must carefully monitor maternal pulse, lung sounds, and glucose levels during ritodrine administration to ensure patient safety. Thus, hyperglycemia is the standard metabolic side effect of this medication.

Question 164. For a 52-year-old woman receiving radiotherapy for stage IIB carcinoma of the cervix, which of

the following statements is incorrect?

A. Point B is 3 cm lateral to point A

B. Point A is 2 cm above the external os and 5 cm lateral to the internal uterine canal

C. Point A receives a dose of 7000 cGy

D. Point B received a dose of 6000 cGy

Correct answer: B

In cervical cancer brachytherapy, Point A and Point B are critical reference points for dose calculation. Point A is defined as being 2 cm superior to the vaginal lateral fornix (external os) and 2 cm lateral (NOT 5 cm) to the uterine canal. This point represents the intersection of the ureter and the uterine artery, making its dose critical for both tumor control and safety. Statement B is therefore incorrect. Point B is indeed 3 cm lateral to Point A (total 5 cm from the midline) and represents the dose delivered to the pelvic side wall and lymph nodes (Option A). In standard protocols, Point A typically receives a cumulative curative dose of approximately 7000–8500 cGy (Option C), while Point B receives significantly less, usually around 4500–6000 cGy (Option D). Therefore, the 5 cm lateral definition for Point A is the definitively inaccurate statement.

Question 165. A 75-year-old woman presents with a vaginal mass as shown in the accompanying image. After pre-anesthetic assessment, she is found to be unfit for major surgical intervention. What is the most appropriate management procedure recommended for this patient?

A. Abdominal wall cervicopexy

B. Shirodkar's sling procedure

C. Le Fort's repair

D. Khanna's sling procedure

Correct answer: C

For an elderly patient (75 years old) with advanced pelvic organ prolapse who is deemed medically unfit for major reconstructive surgery, an obliterative procedure is the safest and most effective option. Le Fort’s colpocleisis involves denuding a portion of the anterior and posterior vaginal walls and suturing them together to obliterate the vaginal canal. This provides excellent support for the prolapsed organs with minimal surgical time and low anesthesia risk. Options A, B, and D are "sling" procedures or suspensions used in younger, sexually active patients to preserve vaginal function while correcting prolapse or nulliparous prolapse. Because the patient is unsuitable for major surgery and likely not prioritizing sexual activity, Le Fort's repair is the definitive gold standard. This procedure essentially "closes" the vagina to keep the

pelvic organs in place. It requires the presence of the uterus and must include lateral channels for the drainage of cervical secretions.

Question 166. A 34-year-old multiparous woman presents with abdominal pain, vaginal bleeding during labor, and absence of fetal movements. She has a history of occasional smoking. On examination, her pulse rate is 80/min, blood pressure is 150/90 mm Hg, and the abdomen feels tense on palpation. Based on these findings, what is the most likely diagnosis?

A. Abruptio placenta

B. Placenta previa

C. Hydramnios

D. Preterm labour

Correct answer: A

The clinical presentation of abdominal pain, vaginal bleeding during labor, and a tense (couvelaire) abdomen on palpation is highly diagnostic of Abruptio Placenta. The lack of fetal movement suggests intrauterine fetal death, a common and severe complication of placental separation. Occasionally smoking and the elevated blood pressure (150/90 mmHg) are significant risk factors for this condition. Placenta previa (Option B) is classically associated with painless vaginal bleeding and a soft, non-tender uterus. Hydramnios (Option C) presents with an overdistended uterus but not acute painful bleeding. Preterm labor (Option D) involves regular contractions without the pathognomonic tenseness and severe hemorrhage seen in abruption. The combination of hypertension, smoking history, and a "wooden" or tense abdomen makes placental abruption the most probable and life-threatening diagnosis for both mother and fetus. Immediate management is required to stabilize the mother and proceed with delivery.

Question 167. How long does lochial discharge typically last in a woman after childbirth?

A. 5-15 days

B. 10-20 days

C. 24-36 days

D. 36-42 days

Correct answer: A

Lochia is the physiological vaginal discharge following delivery, consisting of blood, mucus, and placental tissue. It progresses through three stages: lochia rubra, serosa, and alba. While the initial heavy red discharge (rubra) lasts only a few days, the entire process of uterine involution

and shedding typically results in a discharge that persists for 24 to 36 days (roughly 4 to 5 weeks). Option A and B are too short, representing only the initial inflammatory stages. Option D (up to 42 days or 6 weeks) is the absolute upper limit of the puerperium, but most women find that the discharge tapers off before this point. Clinical monitoring of lochia is essential to identify secondary postpartum hemorrhage or endometritis (infection) if the discharge becomes foul-smelling or remains bright red after the first week. Therefore, the average clinical duration for standard lochial discharge is recognized as the 4-week window.

Question 168. A 55-year-old woman is diagnosed with simple endometrial hyperplasia with atypia. What would be the most appropriate treatment option for her condition?

A. Simple hysterectomy

B. Medroxyprogesterone acetate

C. Levonorgestrel

D. Radiotherapy

Correct answer: A

For a 55-year-old (postmenopausal) woman with endometrial hyperplasia, the presence of atypia is the most critical factor in determining treatment. Atypical hyperplasia is considered a premalignant condition, with a roughly 30% risk of progressing to or harboring co-existing endometrial carcinoma. In a postmenopausal patient who has completed childbearing, the definitive and most suitable treatment is a simple hysterectomy (Option A). This removes the source of potential malignancy entirely. Medical management with progestogens like Medroxyprogesterone (Option B) or a Levonorgestrel-IUS (Option C) is generally reserved for younger patients wishing to preserve fertility or those unfit for surgery. Radiotherapy (Option D) is used for diagnosed invasive cancer, not for premalignant hyperplasia. Therefore, given the high risk of occult carcinoma associated with atypia in this age group, surgical removal of the uterus is the standard of care to ensure complete oncological safety.

Question 169. During a lactation consultation, a mother reports experiencing cramp-like breast pain while breastfeeding. Which hormone is primarily responsible for causing these cramps?

A. Progesterone

B. Estrogen

C. Prolactin

D. Oxytocin

Correct answer: D

The sensation of "breast cramps" or tingling felt by a mother during breastfeeding is part of the

milk ejection reflex. When the infant suckles at the nipple, sensory nerves send signals to the hypothalamus, triggering the release of oxytocin from the posterior pituitary. Oxytocin then travels to the breast, where it causes the contraction of myoepithelial cells surrounding the alveoli to squeeze milk into the ducts. These rhythmic contractions are often perceived by the mother as cramping. Prolactin (Option C) is responsible for milk production (galactopoiesis), not the mechanical ejection or cramping. Estrogen (Option B) and Progesterone (Option A) are involved in breast growth during pregnancy but actually inhibit milk production until their levels drop after delivery. Therefore, oxytocin is the definitive hormone responsible for the mechanical contractions and associated "let-down" cramps during lactation.

Question 170. By the action of the enzyme aromatase, testosterone is converted into estradiol (an estrogen).

A. 5-hydroxy testosterone

B. Estradiol

C. Cortisol

D. Cortisone

Correct answer: B

The enzyme aromatase (part of the cytochrome P450 superfamily) plays a pivotal role in steroidogenesis by catalyzing the "aromatization" of androgens into estrogens. Specifically, it transforms testosterone into estradiol (Option B) and androstenedione into estrone. This process occurs in various tissues, including the granulosa cells of the ovary, adipose tissue, and the brain. Option A refers to a dihydrotestosterone-like metabolite, but it is not the product of aromatase. Cortisol (Option C) and Cortisone (Option D) are glucocorticoids synthesized in the adrenal cortex through different enzymatic pathways involving 21-hydroxylase and 11-beta-hydroxylase. Understanding the aromatase pathway is clinically significant in both reproductive health and oncology, as aromatase inhibitors are used to treat hormone-receptor-positive breast cancer by reducing the peripheral production of estradiol. Therefore, estradiol is the definitive metabolic product of testosterone aromatization.

256. A 30-year-old lactating woman presents with pain and fever involving her left breast. The affected breast appears abnormal, as shown in the image, and there is mild ipsilateral axillary lymph node enlargement, while the right breast is normal. Despite repeated attempts at needle drainage along with antibiotic therapy, her symptoms persist. Ultrasound examination confirms a localized fluid collection. What

should be the next appropriate step in the management of this patient?

Examination Paper June 2022 Question

Question 171. Which of the following carries the lowest risk of developing invasive ductal carcinoma?

A. Florid epithelial hyperplasia

B. Papilloma with fibrovascular core

C. Atypical hyperplasia

D. Squamous metaplasia

Correct answer: D

Breast lesions are categorized by their risk of malignant transformation. Squamous metaplasia (Option D) of the lactiferous ducts is a benign, reactive change often associated with inflammation or abscesses; it carries no increased risk (lowest risk) for the development of invasive ductal carcinoma. In contrast, florid epithelial hyperplasia (Option A) and intraductal papilloma (Option B) are proliferative lesions that carry a mildly increased risk (roughly 1.5 to 2 times baseline). Atypical hyperplasia (Option C), whether ductal or lobular, is a high-risk precursor lesion carrying a significantly elevated risk (4 to 5 times baseline) of progressing to invasive cancer. Understanding this hierarchy is essential for managing patients with benign breast disease. While metaplasia sounds complex, it is essentially a structural adaptation to irritation and lacks the proliferative or atypical characteristics that drive oncogenesis. Therefore, squamous metaplasia is the correct choice for the lesion with minimal oncogenic potential.

Question 172. Which congenital abnormality or teratogenic effect is most commonly associated with the use of lithium during pregnancy?

A. Cardiac defects

B. Facial defects

C. CNS defects

D. Urogenital defects

Correct answer: A

Lithium is a commonly used mood stabilizer that is known to cross the placenta and exert specific teratogenic effects, particularly during the first trimester of pregnancy. The most famous and well-documented association is with cardiac defects (Option A), specifically Ebstein’s anomaly. This rare malformation involve the apical displacement of the tricuspid valve leaflets, leading to "atrialization" of the right ventricle and potential heart failure. While the absolute risk is lower than once thought, it remains significantly higher than in the general

population. Facial defects (Option B), CNS defects (Option C), and urogenital defects (Option D) are associated with other teratogens (like phenytoin or valproic acid) but are not the hallmark toxicity of lithium. Therefore, for any pregnant patient requiring lithium, detailed fetal echocardiography is recommended at 18–20 weeks to screen for these cardiac malformations.

Question 173. Which of the following effects of puberty are not influenced by estrogen?

A. Hair growth

B. Cervical mucus secretion

C. Vaginal cornification

D. Menstruation

Correct answer: A

Puberty in girls is driven by several hormonal systems. While estrogen is the primary driver of the secondary sexual characteristics associated with "feminization," it does NOT influence pubic and axillary hair growth (Option A). This specific effect is driven by adrenal and ovarian androgens, a process known as adrenarche. Estrogen is directly responsible for the development of the reproductive tract and cycles, including the stimulation of cervical mucus secretion (Option B), the maturation and cornification of the vaginal epithelium (Option C), and the proliferation of the endometrium leading to menstruation (Option D). Other estrogenic effects include breast development (thelarche) and the characteristic female fat distribution. Therefore, because hair growth is a purely androgenic process, it is the correct "except" choice in the context of estrogenic influences.

Question 174. True statement for oxytocin?

A. It is responsible for galactokinesis

B. It can be given by oral route

C. It is secreted by anterior pituitary

D. In higher doses, it exerts diuretic like action

Correct answer: A

Oxytocin is a posterior pituitary hormone with several critical reproductive functions. The only true statement provided is that it is responsible for galactokinesis (Option A), which is the "milk let-down" or milk ejection reflex. It causes the contraction of myoepithelial cells surrounding the mammary alveoli. It is NOT given by the oral route (Option B) because it is a peptide and would be digested; it is given parenterally or intranasally. It is synthesized in the hypothalamus and stored/secreted by the posterior pituitary, not the anterior (Option C). Crucially, in high doses, oxytocin has an anti-diuretic effect (similar to ADH) due to cross-reactivity with V2 receptors, which can lead to water intoxication (Option D is the opposite). Therefore, its role in milk ejection is its definitive physiological hallmark.

Question 175. Which physiological process operates through a mechanism similar to that of cervical dilation and fetal expulsion during uterine contractions?

A. Milk ejection by oxytocin

B. Water retention by ADH

C. FSH secretion by anterior pituitary

D. None of the above

Correct answer: A

Cervical dilation and uterine contractions during labor are governed by a positive feedback loop known as the Ferguson reflex. As the fetal head stretches the cervix, more oxytocin is released, which in turn causes stronger contractions and further stretching. The physiological process that shares this exact positive feedback mechanism is milk ejection by oxytocin (Option A). Suckling at the breast sends signals to the brain that trigger oxytocin release; the resulting milk ejection encourages the baby to continue suckling, which further stimulates oxytocin release until the breast is emptied. Water retention by ADH (Option B) is a negative feedback loop designed to restore homeostasis. FSH secretion (Option C) is also primarily controlled by negative feedback from estrogen/inhibin. Therefore, the two core "oxytocin-driven" reproductive processes represent the classic examples of positive feedback in human physiology.

Question 176. In a 12-year-old girl who has reached Tanner stage 4 for breast development and pubic hair growth, which of the following pubertal changes is not exclusively dependent on estrogen?

A. Vaginal cornification

B. Pubic and axillary hair growth

C. Cervical mucus production

D. Menstruation

Correct answer: B

Puberty involves two distinct hormonal events: gonadarche (gonadal activation) and adrenarche (adrenal activation). Breast development and the menstrual cycle are primarily driven by ovarian estrogen. Estrogen is responsible for the maturation of the reproductive tract, including vaginal cornification (Option A), cervical mucus production (Option C), and the proliferation of the endometrium leading to menstruation (Option D). However, pubic and axillary hair growth (Option B) is NOT dependent on estrogen; it is driven by androgens secreted by the adrenal glands and ovaries. This process is known as adrenarche and can occur independently of the estrogen-driven thelarche (breast development). Therefore, in a girl with clinical signs of both pathways (breast and hair development), the hair growth is the only

component listed that is strictly androgen-mediated rather than estrogen-mediated.

Question 177. Which of the following vitamins is deficient in breast milk?

A. Vitamin A

B. Vitamin C

C. Vitamin E

D. Vitamin K

Correct answer: D

Human breast milk is a complete nutritional source for infants, but it is naturally deficient in Vitamin K (Option D). This deficiency, combined with the lack of intestinal flora in neonates to synthesize the vitamin, puts breastfed infants at high risk for Vitamin K Deficiency Bleeding (VKDB), also known as hemorrhagic disease of the newborn. To prevent this, a prophylactic dose of Vitamin K is administered to all newborns at birth. Breast milk is generally rich in Vitamin A (Option A), Vitamin C (Option B), and Vitamin E (Option C), providing sufficient amounts for the infant's needs. Vitamin D is also relatively low in breast milk, but Vitamin K is the classic academic answer for a "major" deficiency that mandates immediate intervention at birth. Therefore, the low concentrations of Vitamin K are a critical clinical consideration in neonatal care.

Question 178. Which of the following features is not considered a favorable prognostic indicator in a middle-aged woman diagnosed with breast carcinoma presenting with a lump in her right breast?

A. Luminal subtype

B. Low Ki67 index

C. Her2 overexpression

D. Mucinous carcinoma

Correct answer: C

Breast cancer prognosis is determined by tumor biology and molecular markers. Her2 overexpression (Option C) is considered an unfavorable prognostic marker, as it is associated with aggressive tumor growth, a higher risk of recurrence, and a poorer overall survival rate compared to Her2-negative tumors. In contrast, the Luminal subtype (Option A) is a favorable marker because these tumors are typically estrogen-receptor positive and respond well to endocrine therapy. A low Ki67 index (Option B) is favorable as it indicates a low percentage of actively dividing cells. Mucinous carcinoma (Option D) is a specific histological type that generally carries a better prognosis than common invasive ductal carcinoma. Therefore, Her2 positivity is the only choice listed that traditionally signifies a more dangerous clinical course, although modern targeted therapies like trastuzumab have significantly improved the outlook

for these patients.

Question 179. During which gestational period is it legally required to obtain the approval of two registered medical practitioners for performing a medical termination of pregnancy (MTP)?

A. 12-24 weeks

B. 20-24 weeks

C. First 12 weeks

D. Greater than 24 weeks

Correct answer: B

According to the Medical Termination of Pregnancy (Amendment) Act, 2021 in India, the legal requirements for abortion change based on gestational age. For pregnancies up to 12 weeks (Option C), the opinion of only one registered medical practitioner is required. For pregnancies between 20 and 24 weeks (Option B), the opinion and approval of two registered medical practitioners are mandatory. Option A is partially correct but includes the week period where rules differ. Option D (greater than 24 weeks) generally requires the approval of a State-level Medical Board for specific cases of substantial fetal abnormalities. Therefore, the 20-24 week window is the specific legal threshold where a "second opinion" is required for termination. This ensures additional oversight for later-term procedures.

Question 180. A tall male presents with sparse pubic and axillary hair, underdeveloped genitalia, and laboratory findings of elevated LH and FSH levels. Karyotype analysis reveals an XXY chromosomal pattern. Based on these features, what is the most likely diagnosis?

A. Vanishing testis syndrome

B. Klinefelter's syndrome

C. Noonan syndrome

D. Adrenal hyperplasia

Correct answer: B

The combination of a tall stature, signs of androgen deficiency (scant hair, small genitalia), and the pathognomonic 47, XXY karyotype is diagnostic of Klinefelter's syndrome (Option B). This is the most common cause of primary hypogonadism in males. The elevated LH and FSH levels occur due to the lack of negative feedback from the failing testes (hypergonadotropic hypogonadism). Vanishing testis syndrome (Option A) would result in a similar hormonal profile but would lack the specific XXY genetics and tall stature. Noonan syndrome (Option C) presents with characteristic facial features and heart defects, usually with a 46, XY karyotype. Congenital

adrenal hyperplasia (Option D) typically presents with ambiguous genitalia in females or precocious puberty in males. Therefore, the specific chromosomal finding of XXY confirms Klinefelter's syndrome as the definitive diagnosis.

(A) Desflurane
(B) Halothane
(C) Sevoflurane
(D) Isoflurane
AAns

(A) Desflurane.
Anesthesia equipment uses a universal color-coding system to prevent medication errors. A vaporizer with a blue color-coded dial or housing is designed exclusively for Desflurane (Option A). Desflurane requires a specialized heated and pressurized vaporizer (like the Tec 6) due to its extremely high vapor pressure and boiling point near room temperature. Halothane (Option B) is color-coded red. Sevoflurane (Option C) is color-coded yellow. Isoflurane (Option D) is color-coded purple. Identifying these colors is a fundamental safety skill for anesthetists. Since the vaporizer in the image is marked with the blue distinctive color of Desflurane, that is the gas it comprises. This visual identification ensures that the correct agent is matched to its corresponding calibrated delivery device.

Question 181. A 34-year-old woman who has recently delivered a baby wishes to avoid pregnancy for the next three years. Which contraceptive method would be the most suitable choice for her?
A. Barrier method
B. IUCD with progesterone
C. Injectable progesterone
D. Nothing besides lactation amenorrhea
Correct answer: B
For a postpartum woman seeking reliable, long-acting reversible contraception (LARC) for a duration of three years, the progesterone-releasing Intrauterine Contraceptive Device (IUCD), such as Mirena, is the most appropriate choice (Option B). These devices are safe for breast feeding mothers as they do not contain estrogen, which can interfere with milk production. They offer high efficacy and can remain in place for up to 5–8 years, covering the patient's three-year goal easily. The barrier method (Option A) has a higher failure rate and is less convenient for long-term use. Injectable progesterone (Option C) requires dosing every 3 months, making it less "long-acting" and reliable than an IUD. Lactational amenorrhea (Option

D) is only reliable for the first six months postpartum if exclusive breastfeeding is practiced. Therefore, the IUCD provides the best balance of safety, duration, and efficacy.

Question 182. A 25-year-old woman (P1L1) with one living child is planning to conceive again and has been newly diagnosed with Graves' disease. Which antithyroid drug is preferred for use during early pregnancy?

A. Propylthiouracil

B. Methimazole

C. Carbimazole

D. All the above

Correct answer: A

For women with hyperthyroidism planning a pregnancy, Propylthiouracil (PTU) is the drug of choice during the early gestation (first trimester) (Option A). PTU is preferred because it is more highly protein-bound and crosses the placenta less readily than other options, and most importantly, it is not associated with the specific "methimazole embryopathy". Methimazole (Option B) and its prodrug Carbimazole (Option C) are associated with rare but severe congenital defects such as aplasia cutis, choanal atresia, and esophageal atresia when used in early pregnancy. Many protocols involve switching the patient to PTU for the first trimester and then back to Methimazole for the remainder of the pregnancy to minimize PTU-related maternal hepatotoxicity. Therefore, to protect the fetus during organogenesis, PTU is the definitive standard recommendation for early pregnancy management of Graves' disease.

Question 183. What is the most appropriate treatment option for an 8 cm endometrial cyst?

A. Needle aspiration

B. Cystectomy

C. Give GnRH

D. Conservative since asymptomatic

Correct answer: B

An 8 cm endometrial cyst (endometrioma or "chocolate cyst") is a large lesion that warrants active surgical intervention. The most appropriate and standard treatment is surgical cystectomy (Option B), usually performed laparoscopically. Cystectomy involves excising the cyst wall, which provides higher relief of symptoms and a lower rate of recurrence compared to other methods. Needle aspiration (Option A) carries an extremely high risk of recurrence and potential spillage of irritant contents, making it less preferred. Medical management with GnRH agonists (Option C) can shrink the cyst temporarily and improve pelvic pain but will not resolve a large 8 cm collection. Conservative management (Option D) is generally only for very small (

cm) cysts; a large 8 cm cyst is at high risk for ovarian torsion or rupture. Therefore, laparoscopic excision is the definitive clinical standard.

DERMATOLOGY

Question 184. Which of the following organisms is the causative agent most commonly associated with acne fulminans?

A. Actinomyces

B. Propionibacterium

C. Mobiluncus

D. Bifidobacterium

Correct answer: B

Acne fulminans is a rare and severe immunological reaction that represents the most extreme form of acne vulgaris. It is triggered by an abnormal systemic immune response to the antigens of Propionibacterium acnes (now renamed Cutibacterium acnes) (Option B). This bacterium is a normal inhabitant of the pilosebaceous unit. In acne fulminans, the body reacts with high levels of inflammation, leading to painful, ulcerated acne lesions and systemic symptoms like fever and bone pain. Actinomyces (Option A) causes actinomycosis, typically presenting with sulfur granules in jaw abscesses. Mobiluncus (Option C) is associated with bacterial vaginosis. Bifidobacterium (Option D) is a common gut probiotic and not a primary skin pathogen. Therefore, the hypersensitivity reaction to P. acnes is the definitive underlying cause of this severe dermatological condition. Management usually requires systemic corticosteroids and isotretinoin.

Question 185. Which of the following does not exhibit the Koebner's phenomenon?

A. Vitiligo

B. Psoriasis

C. Lichen planus

D. Herpes

Correct answer: D

Koebner’s phenomenon, also known as the "isomorphic response," refers to the development of new skin lesions typical of a pre-existing dermatosis at sites of local trauma or injury. Classic examples of skin diseases that exhibit this phenomenon include Vitiligo (Option A), Psoriasis (Option B), and Lichen planus (Option C). Herpes (Option D) is a viral infection; while trauma can reactivate a latent virus (triggering a cold sore), it does not follow the definitive clinical definition of Koebner’s phenomenon, which specifically describes the linear induction of chronic dermatoses by trauma. Other conditions showing Koebner’s include warts and molluscum contagiosum (due to autoinoculation). Because Herpes is an acute, localized viral process

rather than a trauma-induced distribution of a chronic dermatosis, it is the correct "not" choice. Recognizing this phenomenon is useful for clinicians when assessing the distribution of lesions.

Question 186. A 26-year-old man presents with a chronic skin lesion that has a rough, scaly surface. Skin biopsy shows marked hyperkeratosis. Based on these clinical and histopathological findings, what is the most likely diagnosis?

A. Atopic dermatitis-

B. Psoriasis

C. Pemphigus vulgaris

D. Pemphigus foliaceus

Correct answer: B

The clinical description of a scaly, rough skin lesion in a young adult is highly suggestive of Psoriasis (Option B). The histopathological finding of marked hyperkeratosis (thickening of the stratum corneum) is a classic feature of psoriasis, along with parakeratosis and acanthosis. Atopic dermatitis (Option A) typically presents as itchy, poorly defined eczematous patches in the flexures, often with a different histological pattern. Pemphigus vulgaris (Option C) and Pemphigus foliaceus (Option D) are autoimmune blistering diseases; they present with fluid-filled vesicles or erosions rather than primary thick scaly plaques. Pemphigus vulgaris specifically involves painful mucosal erosions and deep blisters. Therefore, the specific combination of a chronic scaly plaque and hyperkeratosis on biopsy makes psoriasis the most probable and accurate diagnosis. Psoriasis lesions are typically well-demarcated with silvery scales.

Question 187. A farmer presents with a markedly swollen foot associated with multiple discharging sinuses, as shown in the provided image. Based on this clinical presentation, what is the most likely diagnosis?

A. Mycetoma

B. Squamous cell carcinoma

C. Nocardia

D. Sporotrichosis

Correct answer: A

The image depicts the classic clinical triad for Mycetoma (Madura foot): localized swelling, multiple draining sinuses, and the discharge of purulent fluid containing granules. Mycetoma is a chronic granulomatous infection typically contracted by farmers who work barefoot and sustain minor trauma from thorns or soil. It can be caused by fungi (eumycetoma) or bacteria

(actinomycetoma). Squamous cell carcinoma (Option B) presents as a non-healing ulcer but not with multiple sinuses and granules. Nocardia (Option C) is a cause of actinomycetoma but the overall "condition" is termed Mycetoma. Sporotrichosis (Option D) usually follows a "lymphocutaneous" pattern with nodules along the lymphatic channels rather than a massive localized foot swelling. Therefore, the characteristic physical appearance of the sinuses and swelling in a rural worker confirms Mycetoma as the definitive diagnosis.

ANAESTHESIA

Question 188. What are the standard preoperative fasting recommendations for different patient categories to reduce the risk of pulmonary aspiration during anesthesia?

A. 4 hours for solids in adults

B. 2 hours for liquids in adults

C. 2 hours for breast milk in infants

D. 4 hours for solids in infants

Correct answer: B

According to the American Society of Anesthesiologists (ASA) guidelines, standardized NPO (nothing by mouth) times are mandated to ensure gastric emptying before anesthesia. The correct recommendation is 2 hours for clear liquids in adults (Option B). This applies to water, fruit juices without pulp, and clear tea. Option A is incorrect because 6 to 8 hours is the required time for solids in adults. For infants, the specific rules are: 4 hours for breast milk (Option C is incorrect as it says 2 hours) and 6 hours for infant formula or solids (Option D is incorrect). These protocols are strictly enforced to prevent the life-threatening complication of Mendelson's syndrome (aspiration of gastric contents). Therefore, the 2-hour window for clear liquids is the only accurately stated guideline among the choices provided.

279. While observing anesthesia equipment in the operating theater, a specific vaporizer is in use. Which of the following gases is it most likely designed to contain?

Question 189. 278. (B) 2 hours for liquids in adults. According to the American

Society of Anesthesiologists (ASA) guidelines, standardized NPO (nothing by mouth) times are mandated to ensure gastric emptying before anesthesia. The correct recommendation is 2 hours for clear liquids in adults (Option B). This applies to water, fruit juices without pulp, and clear tea. Option A is incorrect because 6 to 8 hours is the required time for solids in adults. For infants, the specific rules are: 4 hours for breast milk (Option C is incorrect as it says 2 hours) and 6 hours for infant formula or solids (Option D is incorrect). These protocols are strictly enforced to prevent the life-threatening complication of Mendelson's syndrome (aspiration of gastric contents). Therefore, the 2-hour window for clear liquids is the only accurately stated guideline among the choices provided.

While observing anesthesia equipment in the operating theater, a specific vaporizer is in use. Which of the following gases is it most likely designed to contain?

A. Desflurane

B. Halothane

C. Sevoflurane

D. Isoflurane

Correct answer: A

Anesthesia equipment uses a universal color-coding system to prevent medication errors. A vaporizer with a blue color-coded dial or housing is designed exclusively for Desflurane (Option A). Desflurane requires a specialized heated and pressurized vaporizer (like the Tec 6) due to its

extremely high vapor pressure and boiling point near room temperature. Halothane (Option B) is color-coded red. Sevoflurane (Option C) is color-coded yellow. Isoflurane (Option D) is color-coded purple. Identifying these colors is a fundamental safety skill for anesthetists. Since the vaporizer in the image is marked with the blue distinctive color of Desflurane, that is the gas it comprises. This visual identification ensures that the correct agent is matched to its corresponding calibrated delivery device.

Which of the following beta blockers has a short duration of action?

(A)

Nadolol

(B)

Propranolol

(C)

Esmolol

(D)

Atenolol

Question 190. Which of the following beta blockers has a short duration of action?

A. Nadolol

B. Propranolol

C. Esmolol

D. Atenolol

Correct answer: C

Esmolol (Option C) is an ultra-short-acting cardioselective beta-1 antagonist with a half-life of only 9 minutes. It is rapidly hydrolyzed by red blood cell esterases, which allows for very precise titration when given intravenously. This makes it the drug of choice for managing acute perioperative hypertension or tachycardia. Nadolol (Option A) is a long-acting beta-blocker with a half-life of 20–24 hours, requiring only once-daily dosing. Propranolol (Option B) is a non-selective agent with an intermediate duration of 3–6 hours. Atenolol (Option D) is also an intermediate-to-long-acting cardioselective agent. Because Esmolol's effects are almost immediately reversible by stopping the infusion, it provides a unique safety advantage in unstable patients. Therefore, Esmolol is the definitive answer for the shortest-acting beta-blocker.

Question 191. A 30-year-old man presents with a gradually enlarging swelling near the wrist joint over the past three months. Based on the X-ray findings shown, what is the most likely diagnosis?

A. Ewing's sarcoma

B. Osteosarcoma

C. Osteoclastoma

D. Osteochondroma

Correct answer: C

The X-ray displays an expansile, multi-loculated lytic lesion in the epiphysis of the distal radius, classically described as having a "soap-bubble" appearance. The lesion extends right up to the subchondral bone (articular surface). These are pathognomonic radiological features of Osteoclastoma, also known as a Giant Cell Tumor (GCT) (Option C). GCT is typically seen in young adults (ages 20–40) and is locally aggressive. Ewing’s sarcoma (Option A) presents with an "onion-skin" periosteal reaction in the diaphysis of long bones. Osteosarcoma (Option B) would show a "sunburst" periosteal reaction and a Codman’s triangle. Osteochondroma (Option D) appears as a bony outgrowth on a stalk (exostosis). Therefore, the subarticular location and soap-bubble morphology confirm Osteoclastoma as the definitive diagnosis.

Question 192. A 34-year-old man reports progressive low back pain and morning stiffness for the past six months, with relief on physical activity. He also has a known history of ulcerative colitis. Based on the X-ray of the lumbar spine shown, what is the most likely diagnosis?

A. Pott's spine

B. Psoriatic arthritis

C. Ankylosing spondylitis

D. Rheumatoid arthritis

Correct answer: C

The combination of chronic inflammatory back pain (worse in the morning, improves with exercise) and a history of inflammatory bowel disease (ulcerative colitis) is highly suggestive of a seronegative spondyloarthropathy. The provided X-ray provides the definitive diagnosis, showing vertical syndesmophytes fusing the vertebral bodies, creating the classic "bamboo spine" appearance of Ankylosing Spondylitis (Option C). Pott’s spine (Option A) is spinal tuberculosis, which causes vertebral destruction and angulation (gibbus) rather than smooth fusion. Psoriatic arthritis (Option B) can cause sacroiliitis but usually presents with asymmetric

large syndesmophytes. Rheumatoid arthritis (Option D) primarily affects the small joints of the hands and the cervical spine, not the lumbar spine in this manner. Therefore, the pathognomonic "bamboo spine" in the context of IBD confirms Ankylosing Spondylitis.

Question 193. 283. (D) Pott's spine.
The MRI image reveals destruction of adjacent vertebral bodies and the intervening disc space, accompanied by a large prevertebral and paravertebral fluid collection. This is the hallmark of Pott’s spine (Spinal Tuberculosis). The fluid collection is known as a "cold abscess" because it lacks the intense acute inflammation of a pyogenic infection. Multiple myeloma (Option A) causes multiple "punched-out" lytic lesions but usually spares the disc space. Ankylosing spondylitis (Option B) shows fusion and syndesmophytes without abscess formation. Pyogenic spondylitis (Option C) presents with more acute, rapid bone destruction and systemic toxicity compared to the subacute nature of TB. Because Pott’s spine characteristically involves two adjacent vertebrae, destroys the disc, and forms large paravertebral abscesses, it is the definitive diagnosis.
A 34-year-old man reports progressive low back pain and morning stiffness for the past six months, with relief on physical activity. He also has a known history of ulcerative colitis. Based on the X-ray of the lumbar spine shown, what is the most likely diagnosis?
A. Bronchogenic carcinoma
B. Mesothelioma
C. Metastasis
D. Pneumoconiosis
Correct answer: C
The chest X-ray displays numerous well-
circumscribed,
"punched-out,"
and
widely

scattered round opacities in both lungs. These are known as "cannonball metastases" (Option C). In an elderly male with weight loss and anemia, these likely represent spread from a primary malignancy such as renal cell carcinoma or colorectal cancer. Bronchogenic carcinoma (Option A) typically presents as a single large hilar mass or a peripheral nodule. Mesothelioma (Option B) involves diffuse pleural thickening rather than parenchymal balls. Pneumoconiosis (Option D) involves much smaller, diffuse, and poorly defined nodules related to occupational dust inhalation. Therefore, the characteristic large, discrete, and bilateral "cannonball" appearance is definitive for secondary metastatic deposits. This radiographic finding is a classic clinical indicator of late-stage systemic malignancy.

A 65-year-old man’s chest X-ray shows bilateral blunting of the costophrenic angles along with a meniscus sign on the lateral view. Which condition is most consistent with these radiographic findings?

(A)
Emphysema

(B)
Tension pneumothorax

(C)
Pleural effusion

(D)
Bronchiectasis

Question 194. A 65-year-old man’s chest X-ray shows bilateral blunting of the costophrenic angles along with a meniscus sign on the lateral view. Which condition is most consistent with these

radiographic findings?

A. Emphysema

B. Tension pneumothorax

C. Pleural effusion

D. Bronchiectasis

Correct answer: C

The clinical hallmarks of a Pleural Effusion on a chest radiograph are the blunting of the costophrenic angle (where the lung meets the diaphragm) and the meniscus sign. The meniscus sign is a concave upper border of the fluid, created by the fluid climbing higher at the periphery due to capillary action and negative intrathoracic pressure. Emphysema (Option A) would show hyperinflated lungs with flattened diaphragms. Tension pneumothorax (Option B) would show a dark, air-filled pleural space without lung markings and a shifted mediastinum. Bronchiectasis (Option D) typically shows "tram-track" opacities or cystic changes, not localized fluid collection in the base. Therefore, the specific combination of angle blunting and a radiographic meniscus is definitive for fluid in the pleural cavity. Bilateral involvement in a 65-year-old often suggests a systemic cause like congestive heart failure.

Question 195. A patient presents to the emergency department following a road traffic accident with acute respiratory distress and distended neck veins. Imaging shows a large collection of air on the left side of the chest. What is the most appropriate immediate management?

A. Wide bore needle insertion in the 5th intercostal space

B. Endotracheal intubation

C. Tracheostomy

D. Pericardiocentesis

Correct answer: A

The clinical combination of trauma, respiratory distress, dilated neck veins (elevated JVP), and an X-ray showing a large volume of air in the hemithorax is pathognomonic for a Tension Pneumothorax. This is a life-threatening emergency where air under pressure compresses the heart and the opposite lung. The most appropriate immediate management is needle decompression. According to modern ATLS guidelines, this is performed by inserting a wide-bore needle into the 5th intercostal space in the mid-axillary line (or the 2nd space mid-clavicular line). This converts the tension pneumothorax into a simple one, stabilizing the patient until a chest tube can be placed. Intubation (Option B) and tracheostomy (Option C) address airway obstruction, not pleural air. Pericardiocentesis (Option D) is for cardiac

tamponade. Therefore, immediate decompression is the life-saving next step.

Question 196. Identify the underlying condition as shown in the below radiograp

A. Meningocele

B. Imperforate anus

C. Congenitalmegacolon

D. Mallory-Weiss tear

Correct answer: B

The radiograph of the newborn suggests imperforate anus, a congenital anomaly in which the anal opening is absent or obstructed, preventing the normal passage of stool.

Imperforate anus is part of a spectrum of anorectal malformations, which vary in severity and complexity. It occurs in approximately 1 in 5,000 live births and can affect both males and females.

On the radiograph, there is an absence of gas in the rectum and sigmoid colon, indicating distal bowel obstruction. The presence of abdominal distension further supports this diagnosis, as accumulation of intestinal contents leads to swelling of the abdomen.

Reasons for excluding other options : Meningocele is a neural tube defect involving herniation of meninges and is not identified on an abdominal radiograph. Congenital megacolon (Hirschsprung’s disease) causes bowel obstruction but typically shows gas patterns extending to the colon and does not involve absence of the anal opening. Pyloric stenosis leads to vomiting due to gastric outlet obstruction and does not affect the distal bowel or rectal gas pattern.

Question 197. A 42-year-old man with a history of chronic alcohol use and smoking presents with repeated episodes of vomiting and sudden, sharp epigastric pain. The symptoms began shortly after heavy alcohol intake. He is now febrile and tachycardic. Bedside imaging reveals the presence of free air under the diaphragm. What is the most likely underlying cause?

A. Tension pneumothorax

B. Peptic ulcer perforation

C. Boerhaave syndrome

D. Mallory-Weiss tear

Correct answer: B

The patient presents with recurrent vomiting and sudden sharp epigastric pain, along with a history of chronic alcohol consumption and smoking, which are strong risk factors for peptic

ulcer disease (PUD).

The X-ray shows a key diagnostic feature: free air under the diaphragm (pneumoperitoneum). This indicates perforation of a hollow viscus, most commonly due to a perforated peptic ulcer. When an ulcer erodes through the full thickness of the stomach or duodenal wall, air escapes into the peritoneal cavity, producing this classic radiological sign.

Clinically, perforation presents with:

1.

Sudden severe epigastric pain (“stabbing”)

2.

Vomiting

3.

Signs of peritonitis (guarding, rigidity)

4.

Possible fever and tachycardia

Why other options are incorrect:

1.

Tension pneumothorax → Chest findings, not abdominal free air

2.

Boerhaave syndrome → Esophageal rupture, shows mediastinal air

3.

Mallory-Weiss tear → Causes bleeding, not perforation

Question 198. A 30-year-old patient presents with recurrent frontal headaches, prompting evaluation of the paranasal sinuses. Which radiographic view is best suited for optimal visualization of the frontal sinuses to assess for sinusitis?

A. Lateral view

B. Caldwell view

C. Waters view

D. Submentovertex (SMV) view

Correct answer: B

To evaluate the paranasal sinuses via conventional radiography, specific views are used for different anatomical areas. The Caldwell view (posteroanterior with a 15-degree downward tilt) is the most effective and standard view for detailed visualization of the frontal sinuses (Option B). It also provides good views of the ethmoid sinuses. Waters view (Option C) is the gold standard specifically for the maxillary sinuses. The lateral view (Option A) is useful for the sphenoid sinus and seeing the depth of the frontal sinus but provides poor overall detail

compared to the frontal projections. The Submentovertex view (Option D) is primarily used for the skull base and zygomatic arches. Therefore, because the patient’s clinical concern is frontal sinusitis, the Caldwell view is the definitive radiological choice to clear that specific area. It allows the sinuses to be projected above the petrous ridges.

291. An elderly woman presents with mptoms of confusion, intense thirst, abdominal discomfort, a pale complexion, and sensitivity in her thoracic spine. Her lab results show signincant findings:

1. Hemoglobin (Hb) : 6.9 g/ dL
2. White Blood Cell count :

rBq
c m
40 0
3
o
,

3. With a normal differential
4. Serum calcium: 13 mg/dL
5. Creatinine: 2.3 mg/dl
6. Albumin: 2.4 g/dl
7. Urinalysis: Positive for Bence-lones proteins
8. A skull X-ray indicates lytic lesions. Based on

Question 199. 290. (B) Caldwell view. To evaluate the paranasal sinuses via conventional radiography, specific views are used for different anatomical areas. The Caldwell view (posteroanterior with a 15-degree

downward tilt) is the most effective and standard view for detailed visualization of the frontal sinuses (Option B). It also provides good views of the ethmoid sinuses. Waters view (Option C) is the gold standard specifically for the maxillary sinuses. The lateral view (Option A) is useful for the sphenoid sinus and seeing the depth of the frontal sinus but provides poor overall detail compared to the frontal projections. The Submentovertex view (Option D) is primarily used for the skull base and zygomatic arches. Therefore, because the patient's clinical concern is frontal sinusitis, the Caldwell view is the definitive radiological choice to clear that specific area. It allows the sinuses to be projected above the petrous ridges.

An elderly woman presents with mptoms of confusion, intense thirst, abdominal discomfort, a pale complexion, and sensitivity in her thoracic spine. Her lab results show signincant findings:

1.

Hemoglobin (Hb) : 6.9 g/ dL

2.

White Blood Cell count ,

3.

With a normal differential

4.

Serum calcium: 13 mg/dL

5.

Creatinine: 2.3 mg/dl

6.

Albumin: 2.4 g/dl

7.

Urinalysis: Positive for Bence-lones proteins

8.

A skull X-ray indicates lytic lesions. Based on

9.

These findings, what is the most likely diaglosis?

A. Metastatic breast cancer

B. Multiple myeloma

C. Primary hyperparathyroidism

D. Milk alkali syndrome

Correct answer: B

The provided image and clinical triad are pathognomonic for Multiple Myeloma (Option B). This is a plasma cell malignancy characterized

Question 200. A neonate presents with features of congestive heart failure. On examination, there is an enlarged fontanelle and a bruit is heard on auscultation. Ultrasound reveals a midline hypoechoic lesion. What is the most likely diagnosis?

A. Malformation of vein of Galen

B. Aqueduct stenosis

C. Arachnoid cyst

D. Medulloblastoma

Correct answer: A

The clinical presentation of a neonate with high-output congestive heart failure, enlarging fontanelles (hydrocephalus), and a cranial bruit heard on auscultation is pathognomonic for a Vein of Galen Malformation (VOGM) (Option A). VOGM is a direct arteriovenous shunting from cerebral arteries into the great cerebral vein, which dilates into a massive aneurysmal sac. The USG midline hypoechoic lesion represents this dilated venous sac. Aqueduct stenosis (Option B) and arachnoid cysts (Option C) cause hydrocephalus but would not cause heart failure or a bruit. Medulloblastoma (Option D) is a malignant posterior fossa tumor that typically presents in older children, not as a neonate in heart failure. The shunt in VOGM acts as a low-resistance path for blood, forcing the heart to work excessively to maintain systemic circulation. Therefore, VOGM is the only diagnosis that accounts for both the neurological and cardiovascular findings.

Examination Paper June 2022 Question

Question 201. A patient involved in a road traffic accident presents with loss of consciousness. A CT scan

shows multiple small, spotty hemorrhages with preserved (full) basal cisterns. What is the most likely diagnosis?

A. Brain contusion

B. Diffuse axonal injury

C. Subdural hematoma

D. Multiple infarcts

Correct answer: B

In the setting of a high-speed road traffic accident followed by immediate coma, Diffuse Axonal Injury (DAI) is a leading diagnosis (Option B). DAI is caused by shear forces that tear axons throughout the brain. The hallmark CT findings are multiple spotty (petechial) hemorrhages, typically located at the grey-white matter junction, in the corpus callosum, or in the brainstem. Brain contusions (Option A) are "bruises" typically found at the impact site (coup) or opposite site (contre-coup). A subdural hematoma (Option C) would appear as a crescent-shaped blood collection. Multiple infarcts (Option D) involve ischemic strokes and would not be the primary result of acute trauma. While CT may appear relatively "normal" compared to the patient's severe clinical state, the presence of these spotty hemorrhages in a comatose patient is highly diagnostic. Therefore, DAI represents the severe widespread traumatic injury described by these specific radiological cues.

PSYCHIATRY

Question 202. What is the most likely diagnosis in a 39-year-old man who repeatedly washes his hands 15–20 times daily due to persistent fears of contamination, resulting in significant impairment in his occupational functioning?

A. Bipolar disorder

B. Obsessive compulsive disorder

C. Schizophrenia

D. Mania

Correct answer: B

The patient’s behavior fulfills the core diagnostic criteria for Obsessive-Compulsive Disorder (OCD) (Option B). OCD is characterized by the presence of obsessions (intrusive, persistent thoughts of contamination) and compulsions (repetitive behaviors like excessive hand washing) aimed at reducing the distress caused by the obsessions. These symptoms are time-consuming and lead to significant impairment in social or occupational functioning. Bipolar disorder (Option A) involves cycles of depression and mania, while Mania (Option D) is characterized by elevated mood and racing thoughts, not contamination obsessions. Schizophrenia (Option C) involves

hallucinations and delusions. Because the patient's symptoms are specifically centered on a contamination ritual that he feels compelled to perform to neutralize his anxiety, OCD is the definitive psychiatric diagnosis. Management typically involves selective serotonin reuptake inhibitors (SSRIs) and cognitive-behavioral therapy.

Question 203. A young man with a paternal family history of bipolar disorder presents to the OPD with three documented manic episodes. Which mood stabilizer would be the most appropriate and effective treatment option for him?

A. Valproate

B. Lamotrigine

C. Olanzapine

D. Lithium

Correct answer: D

For a patient with recurrent episodes of classic mania and a strong family history of the disorder, Lithium remains the "gold standard" mood stabilizer (Option D). Lithium is highly effective at both treating acute manic episodes and preventing future recurrences of mania and depression. Valproate (Option A) is an excellent alternative, particularly for "mixed episodes" or rapid cycling, but Lithium is classically favored for pure manic presentations. Lamotrigine (Option B) is primarily effective for the maintenance phase of bipolar depression rather than acute mania. Olanzapine (Option C) is an atypical antipsychotic used for acute stabilization but is not the primary long-term mood stabilizer compared to the established efficacy of lithium. Therefore, given the specific recurrent manic history, Lithium is the most appropriate and historically validated choice for this patient. Monitoring of serum lithium levels and renal/thyroid function is mandatory.

Question 204. In a clinical evaluation, a patient reports deriving sexual gratification from inflicting physical injury on their partner, leading to cuts and burns. What term most accurately describes this behavior?

A. Voyeurism

B. Fetishism

C. Sadism

D. Masochism

Correct answer: C

The behavior described is a paraphilic disorder known as Sexual Sadism (Option C). It involves deriving sexual excitement and pleasure from the infliction of physical or psychological

suffering, pain, or humiliation on another person. Masochism (Option D) is the opposite, where an individual derives pleasure from receiving pain or humiliation. Voyeurism (Option A) involves sexual arousal from observing unsuspecting people who are naked or engaging in sexual activity. Fetishism (Option B) involves sexual arousal from non-living objects or specific non-genital body parts. Because the patient's arousal is specifically linked to the active causing of harm (cuts and burns) to a partner, it fits the definitive clinical definition of sadism. This behavior can be part of a consensual relationship or can cross into criminal assault depending on the context and consent.

Question 205. In a 70-year-old patient with schizophrenia who is being treated for drug-induced Parkinsonism, which medication is most likely responsible for anticholinergic side effects such as constipation, blurred vision, and dry mouth?

A. Lithium

B. Pramipexole

C. Benzhexol

D. Selegiline

Correct answer: C

Drug-induced Parkinsonism is a common side effect of traditional antipsychotic medications used for schizophrenia. To manage these motor symptoms, clinicians often prescribe anticholinergic medications like Benzhexol (Trihexyphenidyl) (Option C). These drugs block acetylcholine to restore the dopamine-acetylcholine balance in the basal ganglia. However, they cause significant systemic anticholinergic side effects, including dry mouth (xerostomia), blurred vision (due to mydriasis/cycloplegia), and constipation. Lithium (Option A) causes polyuria and tremors. Pramipexole (Option B), a dopamine agonist, causes nausea and orthostatic hypotension. Selegiline (Option D), an MAO-B inhibitor, is less associated with this classic anticholinergic triad. Therefore, given the specific combination of symptoms—dry mouth, constipation, and blurred vision—Benzhexol is the definitive medication responsible for the patient's distress. These side effects are particularly bothersome in elderly patients and can exacerbate pre-existing glaucoma or urinary retention.

****

(B) Extensor pollicis brevis → Inserts into
proximal phalanx (shorter tendon)

(C) Abductor pollicis longus → Inserts into
base of 1st metacarpal

Which of the listed arteries is palpable on physical examination in the given image?

(A)
Anterior tibial artery
(B)
Posterior tibial artery
(C)
Dorsalis pedis artery
(D)
Popliteal artery
9.
(B) Posterior tibial artery
The image shows palpation being performed behind the medial malleolus of the ankle. This is the classical anatomical location where the posterior tibial artery is palpated. The artery runs posterior to the medial malleolus, between it and the Achilles tendon, and is a key site for assessing peripheral circulation in the lower limb.
Clinically, palpation of the posterior tibial pulse is important in evaluating peripheral arterial disease, especially in diabetic patients. It is one of the two main pulses checked in the foot, the other being the dorsalis pedis artery.
Why other options are incorrect:
(A) Anterior tibial artery → Not directly palpable at the ankle; continues as dorsalis pedis
(C) Dorsalis pedis artery → Palpated on the dorsum (top) of the foot, not behind medial malleolus
(D) Popliteal artery → Palpated in the popliteal fossa (behind knee)
Identify the type of joint shown in the given image.
(A)
Symphysis
(B)
Syndesmosis
(C)

Synchondrosis

(D)

Synostosis

10. (B) Syndesmosis

The image depicts the radius and ulna of the forearm, specifically highlighting the fibrous connection between their shafts known as the interosseous membrane. This type of fibrous joint is classified as a syndesmosis. In a syndesmosis, bones are united by a sheet of fibrous tissue, either a ligament or a membrane, allowing for minimal movement. A symphysis (Option A) is a secondary cartilaginous joint, such as the pubic symphysis, where bones are joined by fibrocartilage. A synchondrosis (Option C) is a primary cartilaginous joint, like the growth plate, where bones are joined by hyaline cartilage. A synostosis (Option D) is a joint where bones have fused completely, such as the sutures of an adult skull. Given that the image clearly shows the fibrous interosseous membrane spanning the gap between the radius and ulna, the joint is anatomically defined as a syndesmosis.

What characteristic clinical sign is usually seen following an injury to the hypoglossal nerve?

(A)

Tongue deviation to the contralateral side

(B)

Tongue deviation to the same side

(C)

Falling of the tongue

(D)

Inability in tongue protrusion

11. (B) Tongue deviation to the same side

The hypoglossal nerve (CN XII) provides motor innervation to all intrinsic and most extrinsic muscles of the tongue, including the genioglossus. The genioglossus muscle is

primarily responsible for protruding the tongue. In a healthy individual, the simultaneous action of both genioglossus muscles results in a straight, midline protrusion. When one hypoglossal nerve is injured, the genioglossus muscle on the affected side becomes paralyzed. Consequently, when the patient attempts to protrude their tongue, the unopposed action of the healthy genioglossus muscle on the intact side pushes the tongue toward the side of the lesion. Deviation to the contralateral side (Option A) is not seen in lower motor neuron hypoglossal injuries. Falling of the tongue (Option C) and total inability in protrusion (Option D) would require bilateral nerve damage. Therefore, ipsilateral tongue deviation is the classic clinical sign of a unilateral hypoglossal nerve injury.

By what factor does the resistance of an artery increase if its diameter is reduced to one-third of its original value?

(A)

9 times

(B)

81 times

(C)

27 times

(D)

18 times

12. (B) 81 times

According to Poiseuille’s law, the resistance to fluid flow through a vessel is inversely proportional to the fourth power of the radius or diameter . This mathematical relationship is expressed as . If the diameter of an artery is reduced to one-third of its original size, the new resistance can be calculated by substituting the change into the proportionality formula. Since the diameter becomes , the resistance increases by a factor of . Calculating results

in 81. Therefore, a three-fold reduction in diameter leads to an 81-fold increase in vascular resistance. Options A (9 times), C (27 times), and D (18 times) do not follow the inverse fourth-power relationship defined by vascular physiology. This principle explains why even small changes in vessel caliber, such as in atherosclerosis or vasospasm, can significantly impact blood pressure and organ perfusion.

How does the affinity of carbon monoxide for hemoglobin compare with that of oxygen?

(A)

100

(B)

400

(C)

250

(D)

150

13. (C) 250

Hemoglobin is the primary protein in red blood cells responsible for transporting gases throughout the body. While it is designed to bind oxygen, it has a remarkably higher affinity