FMGE January 2025 Question Paper

182 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.

Downloaded from medladder.top — free mock tests plus 8 free modules in every subject, full bank from Rs 199/month.

Question 1. A 45-year-old woman presents with tingling in the lateral three fingers and loss of sensation at the base of the thumb on the dorsal hand. Which nerve is involved?

A. Radial nerve

B. Ulnar nerve

C. Median nerve

D. AIN (Anterior Interosseous Nerve)

Correct answer: A

The patient’s symptoms of tingling in the lateral digits and loss of sensation at the dorsal base of the thumb point to the superficial branch of the radial nerve. This nerve provides cutaneous sensation to the dorsum of the hand, particularly the first web space and the dorsal aspect of the lateral three-and-a-half fingers, excluding the nail beds. The ulnar nerve (Option B) supplies the medial one-and-a-half digits and is not involved here. While the median nerve (Option C) supplies the lateral three-and-a-half digits, its distribution is primarily palmar and includes only the distal dorsal phalanges (fingertips); it does not supply the dorsal root of the thumb. The Anterior Interosseous Nerve (Option D) is a purely motor branch of the median nerve and has no cutaneous sensory distribution. Therefore, the specific loss of sensation on the dorsal aspect of the thumb base confirms radial nerve involvement.

Question 2. Which of the following is the afferent limb of the corneal reflex?

A. Optic nerve

B. Facial nerve

C. Trigeminal nerve

D. Trochlear nerve

Correct answer: C

The corneal reflex is an important protective reflex of the eye that involves both a sensory (afferent) and a motor (efferent) component. The afferent limb is carried by the trigeminal nerve (cranial nerve V), specifically its ophthalmic division (V_1). This division supplies sensory

innervation to the cornea and detects tactile or noxious stimuli applied to it, transmitting the impulse to the brainstem.

The efferent limb of the corneal reflex is mediated by the facial nerve (cranial nerve VII), which innervates the orbicularis oculi muscle, producing bilateral blinking in response to corneal stimulation.

The optic nerve (Option A) is involved in visual pathways and serves as the afferent limb of the pupillary light reflex, not the corneal reflex. The trochlear nerve (Option D) innervates the superior oblique muscle and has no role in corneal sensation or blinking.

Therefore, the trigeminal nerve is the correct answer, as it provides the sensory input necessary to initiate the corneal reflex.

Question 3. What is the type of cartilage present in the histology section given below?

A. Hyaline cartilage

B. Elastic cartilage

C. Articular cartilage

D. Fibrocartilage

Correct answer: A

The histology section shows a homogeneous, glassy (translucent) basophilic matrix with chondrocytes housed in lacunae, often arranged in small isogenous groups. This appearance is characteristic of hyaline cartilage, the most common cartilage type in the body, found in costal cartilages and tracheal rings. Elastic cartilage (Option B) would show a dense network of dark-staining elastic fibers within the matrix, providing flexibility to structures like the auricle. Fibrocartilage (Option D) contains heavy bundles of Type I collagen and fewer chondrocytes, often arranged in rows, and lacks a perichondrium; it is found in intervertebral discs. While articular cartilage (Option C) is a form of hyaline cartilage, it is a specific anatomical designation for cartilage covering joint surfaces; the general tissue type shown is hyaline. Therefore, based on the classic "glassy" matrix and cellular arrangement, hyaline cartilage is the correct histological diagnosis.

Question 4. Identify the lymphatic structure from the histology section given below?

A. Tonsil

B. Lymph node

C. Spleen

D. Thymus

Correct answer: D

The histology section displays a distinct lobulated architecture, which is characteristic of the thymus. Each lobule is divided into a darker, peripheral outer cortex (rich in immature T-cells)

and a lighter, central inner medulla. A pathognomonic feature found in the thymic medulla is Hassall’s corpuscles, which are concentric whorls of keratinized epithelial cells. In contrast, a tonsil (Option A) would show lymphoid follicles with germinal centers and an overlying stratified squamous epithelium with crypts. A lymph node (Option B) also contains follicles but is distinguished by its subcapsular sinus and distinct paracortical region. The spleen (Option C) is characterized by red and white pulp and does not have this lobular cortex-medulla arrangement. Therefore, the lobulated appearance and medullary characteristics confirm that the structure is the thymus.

Question 5. Which among the following is pressure epiphysis

A. Head of Humerus

B. Elbow joint

C. Wrist joint

D. Sternum

Correct answer: A

A pressure epiphysis is the articular end of a long bone that participates in joint formation and is responsible for transmitting the weight of the body. The head of the humerus is a classic example, as it forms the shoulder joint and bears mechanical load during arm movement. Other examples include the head of the femur and the lower end of the radius. Regarding the distractors, terms like the "elbow joint" (Option B) and "wrist joint" (Option C) refer to the entire articulation rather than a specific epiphysis. The sternum (Option D) is a flat bone and does not possess epiphyses in the same manner as long bones. Additionally, there are traction epiphyses (like the humeral tubercles) which serve as attachment points for muscles but do not transmit weight. Therefore, the head of the humerus specifically fits the functional definition of a pressure epiphysis.

Question 6. Identify the level of lymph nodes indicated in the marked region of the neck in the given anatomical image.

Examination Paper January 2025 Question

A. Level II

B. Level Ia

C. Level Ib

D. Level IV

Correct answer: A

The marked lymph nodes are located along the upper part of the internal jugular vein, extending from the skull base to the hyoid bone, which corresponds to Level II (Upper Jugular Nodes). This level includes the clinically significant jugulodigastric node, which is frequently

involved in malignancies of the oropharynx and nasopharynx. Regarding the distractors, Level Ia (Option B) refers to submental nodes in the midline under the chin, and Level Ib (Option C) refers to submandibular nodes lateral to them. Level IV (Option D) consists of lower jugular nodes located between the cricoid cartilage and the clavicle. The vertical position of the nodes along the superior third of the sternocleidomastoid muscle as shown in the image confirms they belong to Level II. Identifying these levels is crucial for staging and planning neck dissections in head and neck cancer patients.

Question 7. What is the most common defect in a ventricular septal defect?

A. Muscular defect

B. Membranous defect

C. Non-development of the perimembranous part of the septum

D. Incomplete fusion of the septum

Correct answer: B

The most common type of ventricular septal defect (VSD) is the membranous (or perimembranous) defect, accounting for approximately 80% of all cases. These defects occur in the membranous part of the interventricular septum, located below the crista supraventricularis. Muscular (trabecular) defects (Option A) are also common, particularly in infants, and may present as multiple defects known as "Swiss cheese" VSDs; they have a high rate of spontaneous closure. Inlet defects (Option C) represent about 8% of all VSDs and are frequently associated with Trisomy 21. Outlet or infundibular defects (Option D) are located below the semilunar valves (aortic and pulmonary) within the outlet septum of the right ventricle. VSDs generally result from the incomplete development or fusion of various septal components during embryonic cardiac formation. While muscular defects are prevalent, the membranous type remains the most frequently encountered in clinical practice and carries a high potential for spontaneous closure.

Question 8. The afferent limb of the corneal (wisp) reflex is carried by the ophthalmic division of the trigeminal nerve (V1), specifically via the nasociliary nerve.

A. Facial Nerve

B. Trigeminal Nerve

C. Oculomotor Nerve (D) Abducens Nerve

Correct answer: B

The corneal reflex (blink reflex) is a protective mechanism that triggers bilateral eyelid closure when the cornea is stimulated. The Trigeminal nerve (CN V), specifically the ophthalmic division

(V1), is responsible for the afferent limb of this reflex. Sensory fibers from the cornea travel via the nasociliary branch of V1 to the trigeminal sensory nucleus in the brainstem. The Facial nerve (CN VII) (Option A) mediates the efferent limb, sending motor signals to the orbicularis oculi muscle to contract and close the eye. The Oculomotor nerve (CN III) (Option C) controls eyelid elevation and most extraocular muscles but is not part of this reflex pathway. The Abducens nerve (CN VI) (Option D) is responsible for lateral eye movement and is unrelated to the blink response. Clinically, testing this reflex is essential for assessing brainstem integrity and the function of cranial nerves V and VII.

Question 9. A histological section is shown, with an arrow indicating a large, flask-shaped cell located in the middle layer. Identify the cell marked by the arrow.

A. Stellate cell

B. Basket cell

C. Purkinje cell

D. Granular cell

Correct answer: C

The histological section shows the cerebellar cortex, which consists of three layers: molecular, Purkinje, and granular. The marked area is a Purkinje cell, identifiable by its large, flask-shaped body arranged in a single row between the other two layers. These cells provide the only output from the cerebellar cortex and have an inhibitory effect on deep nuclei. Stellate and basket cells (Options A and B) are smaller inhibitory interneurons located in the outer molecular layer. Granular cells (Option D) are small, densely packed excitatory neurons found in the innermost granular layer. Purkinje cells are unique for their extensive dendritic branches that extend into the molecular layer. Identifying these cells is fundamental for understanding the architecture and inhibitory coordination of the cerebellum.

Question 10. What stage of embryonic development is shown in the following image?

A. Morula

B. Ova

C. Blastocyst

D. Gastrula

Correct answer: C

The image illustrates a blastocyst, which typically forms around Day 5 of embryonic development. It is identifiable by its unique structure: an outer layer of cells called the trophoblast (which forms the placenta), a cluster of cells inside called the inner cell mass (which becomes the embryo), and a central fluid-filled cavity known as the blastocoel. A morula

(Option A) is an earlier stage (Day 4) consisting of a solid ball of 16–32 cells without a cavity. An ovum (Option B) is the single-cell unfertilized egg. A gastrula (Option D) is a later stage (Day 14+) where the embryo differentiates into three germ layers (ectoderm, mesoderm, endoderm). Implantation into the endometrial wall begins as the blastocyst stage is reached. Understanding these distinct morphological stages is fundamental for studying embryogenesis.

Question 11. Identify the type of cartilage?

A. Hyaline cartilage

B. Elastic cartilage

C. Fibro cartilage

D. Calcified cartilage

Correct answer: A

The histological image shows hyaline cartilage, identifiable by its glassy, homogeneous extracellular matrix (ECM) rich in Type II collagen. Chondrocytes are seen residing within spaces called lacunae. Hyaline cartilage is the most common type and is found in articular surfaces, the respiratory tract, and the fetal skeleton. Elastic cartilage (Option B) contains dense networks of elastic fibers, making it more flexible, and is found in the outer ear and epiglottis. Fibrocartilage (Option C) contains thick bundles of Type I collagen, providing high tensile strength for intervertebral discs and the pubic symphysis. Calcified cartilage (Option D) is hyaline cartilage that has accumulated calcium salts, often seen during bone development or aging. The lack of visible fibers in the matrix confirms this as hyaline.

PHYSIOLOGY

Question 12. Which segment of the nephron has the lowest osmolality under the influence of antidiuretic hormone (ADH)?

A. Early distal tubule

B. Descending limb of the loop of Henle

C. Collecting duct

D. Late distal tubule

Correct answer: A

The early distal tubule maintains the lowest osmolality in the nephron, regardless of the presence of antidiuretic hormone (ADH). This segment is functionally impermeable to water but actively reabsorbs sodium and chloride (NaCl), which further dilutes the tubular fluid, making it hypotonic. In contrast, the descending limb of the loop of Henle (Option B) is highly permeable to water, leading to a significant increase in osmolality as fluid moves into the hypertonic medulla. Under the influence of ADH, the collecting duct (Option C) and the late distal tubule (Option D) become highly permeable to water via aquaporins. This allows water to be reabsorbed along the osmotic gradient, which concentrates the urine and increases the

osmolality of the fluid within these segments significantly. Therefore, the early distal tubule remains the most dilute segment because it removes solutes without allowing water to follow.

Question 13. Which of the following physiological changes occurs in muscles during contraction while exercising?

A. M length increase

B. A length decrease

C. I length decrease

D. M length increase and I decrease

Correct answer: C

During muscle contraction, the sarcomere shortens according to the sliding filament theory. The I-band, which consists only of thin (actin) filaments, decreases in length as these filaments are pulled toward the center of the sarcomere, increasing their overlap with the thick (myosin) filaments. The H-zone, the region containing only thick filaments, also shortens or disappears. The A-band (Option B) corresponds to the full length of the thick filaments; since the filaments themselves do not change in length, the A-band remains constant during contraction. The M-line marks the central point where thick filaments are anchored and does not increase in length (Option A); it simply becomes more prominent. Option D is incorrect because the M-line length remains stable. Therefore, the only correct observation among the choices is the shortening of the I-band as the muscle fibers actively contract.

Question 14. During spermatogenesis, which hormone is responsible for inhibiting the secretion of follicle-stimulating hormone (FSH)?

A. Testosterone

B. Inhibin

C. Luteinizing Hormone (LH)

D. Androgen

Correct answer: B

Inhibin, specifically Inhibin B, is the primary hormone secreted by Sertoli cells in the testes that negatively regulates the secretion of Follicle-Stimulating Hormone (FSH) from the anterior pituitary. This feedback mechanism is crucial for controlling the rate of spermatogenesis. While testosterone (Option A) and other androgens (Option D) also provide negative feedback, they primarily act on the hypothalamus and pituitary to inhibit the secretion of Luteinizing Hormone (LH) and Gonadotropin-Releasing Hormone (GnRH), rather than FSH directly. Luteinizing

Hormone (Option C) serves to stimulate the Leydig cells to produce testosterone and does not have an inhibitory role in this pathway. Therefore, Inhibin is the specific factor responsible for the targeted inhibition of FSH during the male reproductive cycle.

Question 15. A patient with a long history of chronic smoking presents with breathlessness. Pulmonary function tests reveal a reduced FEV_1%. What is the most likely diagnosis?

A. Chronic Obstructive Pulmonary Disease (COPD)

B. Pulmonary Fibrosis

C. Interstitial Lung Disease

D. Asthma

Correct answer: A

A history of chronic smoking combined with an obstructive pattern on spirometry—specifically a decrease in FEV1 and a reduced FEV1/FVC ratio (<70%)—is characteristic of COPD. COPD includes chronic bronchitis and emphysema, both of which involve irreversible airflow limitation. In contrast, pulmonary fibrosis (Option B) and interstitial lung disease (Option C) are restrictive lung diseases; they typically show a normal or even increased FEV1/FVC ratio because the forced vital capacity (FVC) decreases more than the FEV1. While asthma (Option D) also causes an obstructive pattern, it is distinguished from COPD by its significant reversibility after bronchodilator use and is less directly linked to chronic smoking in late adulthood compared to COPD. Therefore, given the specific risk factor of smoking and the obstructive findings, COPD is the most likely clinical diagnosis.

Question 16. Dehydration is more severe in infants compared to adults. Which of the following is a true statement about infants?

A. Extracellular fluid (ECF) is more than intracellular fluid (ICF)

B. Intracellular fluid (ICF) is more than extracellular fluid (ECF)

C. Total body water in infants is more than in adults

D. Extracellular fluid equals intracellular fluid

Correct answer: C

Infants have a significantly higher percentage of total body water (TBW) compared to adults, which contributes to their increased susceptibility to severe dehydration. At birth, TBW accounts for approximately 75–80% of an infant's body weight, whereas it is only about 55–60% in adults. In the early neonatal period, the extracellular fluid (ECF) volume actually exceeds the intracellular fluid (ICF) volume (supporting Option A at birth, but not as a general lifelong rule). As the infant grows, the ICF eventually becomes the dominant compartment. Option B is incorrect for neonates but true for older children and adults. ECF and ICF are never equal (Option D). Because infants have higher metabolic rates and higher water turnover, any fluid loss represents a larger proportion of their TBW, making dehydration a pediatric emergency.

Question 17. In an experimental study, norepinephrine was administered to guinea pigs, leading to an increase in both systolic and diastolic blood pressure along with a reduction in heart rate. Which physiological mechanism best explains this response?

A. Beta-1 receptor blockade

B. Alpha-1 receptor blockade

Examination Paper January 2025 Question

C. Baroreceptor stimulation

D. Baroreceptor inhibition

Correct answer: C

Norepinephrine (NE) is a potent -adrenergic agonist that causes widespread vasoconstriction, leading to a significant increase in both systolic and diastolic blood pressure. Although NE also stimulates -receptors in the heart (which would normally increase heart rate), the rapid rise in systemic blood pressure stretches the baroreceptors in the carotid sinus and aortic arch. This baroreceptor stimulation triggers a reflex vagal (parasympathetic) response from the medulla, which overrides the direct cardiac effect and causes a compensatory decrease in heart rate (reflex bradycardia). Option A and B are incorrect because NE is an agonist, not a blocker. Baroreceptor inhibition (Option D) would result in a faster heart rate due to a loss of parasympathetic tone. Thus, the paradox of increased blood pressure coupled with a decreased heart rate is entirely explained by the baroreceptor reflex.

Question 18. A patient engages in strenuous exercise, skips a meal, and later consumes alcohol at a party. Alcohol intake inhibits which biochemical process, thereby increasing the risk of developing hypoglycemia?

A. Gluconeogenesis

B. Glycogenolysis

C. Hexose Monophosphate (HMP) Shunt

D. Ketone Body Formation

Correct answer: A

Alcohol metabolism by alcohol dehydrogenase and acetaldehyde dehydrogenase produces an excess of NADH, significantly increasing the NADH/NAD+ ratio in the liver. This high ratio shifts metabolic reactions away from glucose production by preventing the conversion of lactate to pyruvate and malate to oxaloacetate, both of which are essential substrates for gluconeogenesis. Hypoglycemia occurs because the body cannot synthesize new glucose once glycogen stores are depleted (common after exercise or fasting). Alcohol does not directly inhibit glycogenolysis (Option B), but it becomes the primary issue when glycogen is already gone. The HMP shunt (Option C) and ketone body formation (Option D) are not the primary pathways responsible for blood glucose maintenance. In fact, alcohol metabolism can actually promote ketogenesis. Therefore, the inhibition of gluconeogenesis is the specific mechanism behind alcohol-induced fasting hypoglycemia.

Question 19. Which of the following is deficient in the mucopolysaccharidosis associated with Natowicz disease?

A. Dermatan sulfate

B. Heparan sulfate

C. Keratan sulfate

D. Hyaluronic acid

Correct answer: D

Natowicz Disease, also classified as Mucopolysaccharidosis Type IX (MPS IX), is an extremely rare autosomal recessive disorder caused by a deficiency of the enzyme hyaluronidase. This enzyme is responsible for the degradation of hyaluronic acid (hyaluronan); its deficiency leads to the abnormal accumulation of hyaluronic acid in various tissues. Clinical features are relatively mild compared to other MPS types and include soft tissue masses and joint stiffness. In contrast, dermatan and heparan sulfate (Options A and B) accumulate in MPS I (Hurler) and MPS II (Hunter) syndromes due to different enzyme defects. Keratan sulfate (Option C) accumulates in MPS IV (Morquio syndrome). Because Natowicz disease is specifically the "hyaluronan-accumulation" disorder, the absence of hyaluronidase makes hyaluronic acid the deficiently processed glycosaminoglycan (GAG).

Question 20. Which of the following enzymes is dependent

on Vitamin C for its activity?

A. Lysyl dehydrogenase

B. Lysyl oxidase

C. Prolyl hydroxylase

D. Hydroxyprolyl kinase

Correct answer: C

Prolyl hydroxylase is a key enzyme in collagen synthesis, responsible for the hydroxylation of proline residues in procollagen. This post-translational modification is essential for the stability of the collagen triple helix.

The enzyme requires vitamin C (ascorbic acid) as a cofactor to keep iron (Fe^{2+}) in its reduced, active state at the catalytic site. In the absence of vitamin C, prolyl hydroxylase (and lysyl hydroxylase) cannot function effectively, leading to defective collagen formation, which is the biochemical basis of scurvy.

Lysyl oxidase (Option B) is also involved in collagen maturation, but it is copper-dependent, not vitamin C–dependent, and is responsible for cross-linking collagen and elastin fibers.

Lysyl dehydrogenase (Option A) and hydroxyprolyl kinase (Option D) are not key enzymes in the vitamin C–dependent collagen synthesis pathway.

Thus, the enzyme whose activity depends on vitamin C is prolyl hydroxylase, explaining the classic features of vitamin C deficiency such as bleeding gums and impaired wound healing.

Question 21. A 35-year-old man presents to the emergency department with blurred vision, dizziness, and a severe headache after consuming an unknown amount of homemade alcohol earlier the same day. He is disoriented on examination, and laboratory investigations show a high–anion gap metabolic acidosis. Which metabolite is primarily responsible for the toxicity in this condition?

A. Methanol

B. Formic acid

C. Formaldehyde

D. Acetic acid

Correct answer: B

The patient’s symptoms of blurred ("snowfield") vision, dizziness, and metabolic acidosis with a high anion gap after consuming homemade alcohol are classic for methanol poisoning. Methanol (Option A) itself is not directly toxic. It is metabolized by alcohol dehydrogenase to formaldehyde (Option C), which is then rapidly converted by aldehyde dehydrogenase into

formic acid. Formic acid is the primary metabolite responsible for the toxicity; it inhibits cytochrome c oxidase, causing cellular hypoxia, optic neuropathy, and severe metabolic acidosis. Acetic acid (Option D) is the non-toxic product of ethanol metabolism. Formaldehyde is an intermediate but is too short-lived to be the primary driver of systemic toxicity. Treatment involves ethanol or fomepizole to block the formation of these toxic metabolites.

Question 22. Which amino acid serves as the principal buffer in blood because of its ability to both accept and donate protons at physiological pH?

A. Histidine

B. Arginine

C. Tryptophan

D. Tyrosine

Correct answer: A

Histidine is the only amino acid that functions effectively as a buffer at physiological pH (7.4). This is because its imidazole side chain has a pKa of approximately 6.0, which is close enough to the blood's pH to allow it to both accept and donate protons. Arginine (Option B) has a pKa of 12.5, which is far too high to act as a buffer in the body. Tryptophan (Option C) and Tyrosine (Option D) have minimal buffering capacity because their side chains are either non-ionizable or have pKa values (10.1 for tyrosine) that are not relevant at physiological pH. Histidine residues are particularly abundant in hemoglobin, where they play a vital role in the Bohr effect, helping to maintain blood pH while regulating oxygen delivery to tissues.

Question 23. During prolonged starvation, which hormone is predominantly secreted to help maintain blood glucose levels?

A. Glucagon

B. Insulin

C. Amylase

D. Somatostatin

Correct answer: A

During starvation, glucagon is the primary hormone secreted to maintain blood glucose levels. It functions by stimulating glycogenolysis (glycogen breakdown) and gluconeogenesis (glucose synthesis) in the liver, while also increasing lipolysis in adipose tissue to provide alternative fuel sources. Insulin (Option B) levels decrease during starvation to limit glucose uptake by peripheral tissues and conserve it for the brain. Amylase (Option C) is a digestive enzyme, not a metabolic hormone. Somatostatin (Option D) inhibits both insulin and glucagon but does not directly drive the glucose elevation needed during a fast. As starvation progresses past the first 24 hours, glucagon remains essential for driving hepatic gluconeogenesis as glycogen stores

are depleted. Cortisol and growth hormone also eventually increase to support these long-term metabolic adaptations.

Question 24. In cases of paracetamol poisoning, N-acetylcysteine is used as an antidote. What is its mechanism of action in preventing toxicity?

A. Inhibits the toxin

B. Removes the toxin

C. Restores glutathione levels

D. Neutralizes liver enzymes

Correct answer: C

Paracetamol is metabolized into a toxic intermediate called NAPQI, which is normally detoxified by glutathione. In an overdose, glutathione stores are depleted, allowing NAPQI to accumulate and cause hepatic necrosis. N-acetylcysteine (NAC) prevents this by acting as a glutathione precursor, effectively replenishing glutathione levels to facilitate detoxification. NAC does not inhibit the formation of the toxin (Option A), nor does it directly remove paracetamol from the system (Option B). It also does not neutralize liver enzymes (Option D). NAC therapy is most effective when initiated within 8 hours of ingestion but may still provide benefit up to 36 hours post-overdose. Additionally, NAC directly binds to NAPQI and enhances the non-toxic sulfation metabolic pathway. This life-saving intervention is the cornerstone of managing paracetamol-induced acute liver failure.

Question 25. What is the primary mechanism behind tissue damage in long-standing diabetes?

A. Insulin resistance

B. Sorbitol accumulation

C. Hyperglycemia

D. Decreased insulin secretion

Correct answer: C

Chronic hyperglycemia is the fundamental mechanism driving tissue damage in long-standing diabetes. Persistent high blood glucose levels lead to several destructive pathways, including the formation of Advanced Glycation End Products (AGEs), which cause inflammation and vascular injury. While sorbitol accumulation (Option B) contributes specifically to cataracts and neuropathy through the polyol pathway, it is just one of many mechanisms triggered by hyperglycemia. Insulin resistance (Option A) and decreased insulin secretion (Option D) are the

underlying causes of the diabetic state, but the resulting hyperglycemia is what actually mediates chronic complications like retinopathy, nephropathy, and atherosclerosis. Other hyperglycemia-induced pathways include the activation of Protein Kinase C (PKC) and the hexosamine pathway, both of which increase vascular permeability and oxidative stress. Thus, managing blood glucose is central to preventing systemic diabetic complications.

Question 26. KAT G mutation associated with:

A. Isoniazid

B. Rifampicin

C. Levofloxacin

D. Ethambutol

Correct answer: A

Resistance to Isoniazid (INH) in Mycobacterium tuberculosis is most commonly associated with a mutation in the katG gene. INH is a prodrug that must be activated by the catalase-peroxidase enzyme, which is encoded by katG. Mutations in this gene result in an ineffective enzyme that cannot activate the drug, leading to high-level resistance. Rifampicin resistance (Option B) is associated with mutations in the rpoB gene (RNA polymerase). Levofloxacin resistance (Option C) is linked to mutations in DNA gyrase genes (gyrA and gyrB). Ethambutol resistance (Option D) involves mutations in the embB gene, affecting cell wall synthesis. Other INH resistance mechanisms include mutations in the inhA promoter or the kasA gene. Understanding these genetic markers is essential for interpreting rapid molecular diagnostic tests like GeneXpert or Line Probe Assays for drug-resistant tuberculosis management.

Question 27. In patients with diabetes mellitus, cataract formation occurs mainly due to the accumulation of which substance within the lens?

A. Sorbitol

B. Dulcitol

C. Mannitol

D. Galactitol

Correct answer: A

In patients with diabetes, chronic hyperglycemia activates the polyol pathway, where glucose is converted into sorbitol by the enzyme aldose reductase. Sorbitol is only slowly metabolized into fructose, leading to its accumulation within the lens. Because sorbitol is osmotically active, its presence causes a significant influx of water, resulting in lens swelling and osmotic stress. This process, along with subsequent oxidative damage to lens proteins, leads to the formation of "snowflake cataracts" in younger diabetics or accelerated senile cataracts in older patients. Dulcitol and Galactitol (Options B and D) are identical substances that accumulate in cases of

galactosemia, not diabetes. Mannitol (Option C) is an exogenous osmotic diuretic that does not accumulate in the lens. Therefore, sorbitol accumulation is the direct biochemical cause of lens opacification in the setting of elevated blood glucose levels.

PATHOLOGY

Question 28. Which of the following enzymes is typically elevated in prostate cancer?

A. Acid phosphatase

B. Alkaline phosphatase

C. Lactate dehydrogenase

D. Alpha-fetoprotein

Correct answer: A

Acid phosphatase, specifically the prostatic acid phosphatase (PAP) isoenzyme, is characteristically elevated in patients with prostate cancer, particularly when the disease is advanced or has metastasized to the bone. While prostatic acid phosphatase was historically the primary tumor marker for this condition, it has largely been replaced in clinical practice by the more sensitive prostate-specific antigen (PSA). Regarding the distractors, alkaline phosphatase (Option B) may increase during bone metastasis but is non-specific, as it also rises in liver diseases and other bone disorders. Lactate dehydrogenase (Option C) is a general marker of high cell turnover seen in many malignancies and is not specific to the prostate. Alpha-fetoprotein (Option D) serves as a marker for hepatocellular carcinoma and certain germ cell tumors rather than prostate cancer. Therefore, acid phosphatase remains a classic biochemical marker associated with prostatic malignancy in medical examinations.

Question 29. What is the usual method of collecting a sample of urine to detect UTI?

A. Early morning sample

B. Midstream catch

C. Supra pubic catheter

D. Starting stream collection

Correct answer: B

In toilet-trained individuals, the "clean-catch" midstream urine sample is the preferred method for detecting a Urinary Tract Infection (UTI). This technique minimizes contamination from skin flora and urethral commensals. The patient is instructed to clean the area and discard the initial portion of the stream before collecting the sample. Early morning samples (Option A) are used to screen for proteinuria but are not specific for UTI. Suprapubic aspiration or catheterization (Option C) is the gold standard for accuracy but is invasive and usually reserved for infants or patients unable to provide a voided sample. Starting stream collection (Option D) is avoided because the first voided portion typically contains the highest concentration of contaminating

urethral bacteria. Thus, midstream catch offers the best balance of diagnostic accuracy and ease of use.

PSM

Question 30. Which of the following conditions is not reversed with the administration of atropine?

A. Bradycardia

B. Muscle weakness due to neuromuscular blockade

C. Excessive salivation

D. Bronchoconstriction

Correct answer: B

Atropine is a competitive antagonist of muscarinic acetylcholine receptors, and it effectively counteracts parasympathetic overstimulation at smooth muscle, cardiac tissue, and exocrine glands. Therefore, it is useful in conditions such as bradycardia (Option A), excessive salivation (Option C), and bronchoconstriction (Option D), which are mediated by M_2 and M_3 muscarinic receptors.

However, muscle weakness caused by neuromuscular blocking agents is mediated by nicotinic acetylcholine receptors (Nm) located at the neuromuscular junction. Atropine has no action on nicotinic receptors, and thus cannot reverse skeletal muscle paralysis or weakness.

Reversal of neuromuscular blockade requires an acetylcholinesterase inhibitor such as neostigmine, which increases acetylcholine levels at the neuromuscular junction to competitively overcome the blockade. Atropine is administered concurrently with neostigmine only to prevent muscarinic side effects (such as bradycardia, bronchospasm, and salivation) caused by increased acetylcholine.

Therefore, atropine cannot directly improve skeletal muscle strength, as it does not act on the receptors responsible for neuromuscular transmission.

Question 31. Which drug is preferred for management of diabetes in a patient with cardiac and renal failure?

A. SGLT2 inhibitors

B. Pioglitazone

C. Metformin

D. Sulfonylureas

Correct answer: A

SGLT2 inhibitors (such as empagliflozin and dapagliflozin) are the preferred drugs for managing diabetes in patients with both cardiac and renal failure because of their strong cardioprotective and renoprotective benefits, independent of glucose control.

These drugs act on the proximal renal tubules to inhibit sodium–glucose cotransport, leading to glycosuria and natriuresis. This results in osmotic diuresis, reduced preload and afterload, improvement in heart failure outcomes, and slowing of chronic kidney disease progression.
Pioglitazone (Option B) is contraindicated in heart failure due to fluid retention and weight gain, which can worsen cardiac function.
Metformin (Option C), although first-line for type 2 diabetes, is contraindicated in advanced renal failure because of the risk of lactic acidosis.
Sulfonylureas (Option D) increase the risk of prolonged hypoglycemia, especially in renal impairment due to reduced drug clearance.
Thus, SGLT2 inhibitors provide the greatest overall benefit with the lowest risk in diabetic patients with concomitant heart failure and chronic kidney disease, making them the drug of choice in this scenario.

Question 32. Which adverse effect of Bleomycin is exacerbated by radiation exposure?

A. Pulmonary toxicity
B. Gastric toxicity
C. Neural toxicity
D. Hepatotoxicity

Correct answer: A

Bleomycin is an antitumor antibiotic known for its dose-limiting pulmonary toxicity, which can manifest as interstitial pneumonitis or progressive pulmonary fibrosis. This risk is significantly exacerbated by concurrent or prior radiation exposure, a phenomenon sometimes called "radiation recall pneumonitis". The lung tissue is particularly vulnerable because it lacks significant levels of bleomycin hydrolase, the enzyme responsible for inactivating the drug. Regarding other options, bleomycin has minimal impact on the gastrointestinal tract (Option B) and is not associated with significant neurotoxicity (Option C), unlike drugs like vincristine. It also lacks the significant hepatotoxicity (Option D) seen with many other chemotherapeutic agents. Cumulative doses exceeding 400 units and supplemental oxygen therapy also increase the risk of lung damage. Therefore, monitoring pulmonary function via is essential when combining bleomycin with radiation.

Question 33. What is the key difference between Cisplatin and Carboplatin?

A. Cisplatin is less neurotoxic than Carboplatin
B. Cisplatin
causes
fewer
gastric

issues
compared to Carboplatin
C. Carboplatin is more neurotoxic than
Cisplatin
D. Cisplatin has more nephrotoxic side effects
compared to Carboplatin

Correct answer: D

While both are platinum-based chemotherapy agents, they have distinct toxicity profiles. Cisplatin is highly nephrotoxic, often causing acute tubular necrosis, and requires aggressive intravenous hydration with mannitol or amifostine to protect the kidneys. Carboplatin, its second-generation analog, is significantly less nephrotoxic and generally does not require such intensive hydration. Regarding the other options, Cisplatin is actually more neurotoxic (Option A) and more emetogenic (causing severe nausea/vomiting, Option B) than Carboplatin. Option C is incorrect because Cisplatin remains the more neurotoxic drug of the two, often causing peripheral neuropathy and ototoxicity. Carboplatin’s main dose-limiting toxicity is myelosuppression, particularly thrombocytopenia. Therefore, the higher risk of kidney injury (nephrotoxicity) is the most critical clinical difference that necessitates different management protocols for patients receiving Cisplatin.

Question 34. A patient with rheumatoid arthritis is being treated with indomethacin and is also on an ACE inhibitor for hypertension. Which adverse effect is most likely to occur due to this drug combination?

A. Hyperkalemia
B. Hypercalcemia
C. Hypernatremia
D. Hyperphosphatemia

Correct answer: A

The concurrent use of an ACE inhibitor (like enalapril) and a nonsteroidal anti-inflammatory drug (NSAID) like indomethacin significantly increases the risk of hyperkalemia. ACE inhibitors reduce aldosterone secretion by blocking angiotensin II production, which leads to decreased potassium excretion. Indomethacin further worsens this by inhibiting renal prostaglandins, which normally maintain renal blood flow and support potassium secretion. The combination effectively impairs the body's ability to clear potassium, potentially leading to cardiac arrhythmias. Hypercalcemia (Option B) is not a standard side effect of either drug. Hypernatremia (Option C) is unlikely because ACE inhibitors promote mild sodium excretion (natriuresis). Hyperphosphatemia (Option D) is typically a complication of chronic kidney

disease rather than a direct drug-drug interaction between these classes. Therefore, serum potassium levels must be closely monitored in patients on this combination therapy.

Question 35. A patient with a known penicillin allergy presents with fever and burning micturition, along with hearing impairment and dizziness. Which drug would be the most appropriate choice for management in this case?

A. Azithromycin

B. Amikacin

C. Ciprofloxacin

D. Ampicillin-Clavulanic acid

Correct answer: C

The patient presents with symptoms of a urinary tract infection (UTI) and pre-existing hearing/ balance issues. Given the penicillin allergy, beta-lactams like Ampicillin-Clavulanic acid (Option D) are contraindicated. Ciprofloxacin, a fluoroquinolone, is highly effective against common Gram-negative uropathogens and is safe for penicillin-allergic patients. Regarding the other choices, Amikacin (Option B) is an aminoglycoside that provides excellent UTI coverage but is notoriously ototoxic and nephrotoxic; using it in a patient who already has hearing problems and dizziness would be dangerous. Azithromycin (Option A) is a macrolide that has poor urinary tract penetration and is not a first-line agent for UTI. Ciprofloxacin offers the best balance of efficacy for burning micturition while avoiding exacerbation of the patient’s otologic symptoms. Therefore, Ciprofloxacin is the most appropriate and safest management choice in this specific clinical scenario.

Question 36. Which of the following drug dosages is not correct for the treatment of leprosy in adults?

A. Dapsone 100 mg

B. Clofazimine 50 mg

C. Clofazimine 300 mg

D. Rifampicin 450 mg

Correct answer: D

In the standard World Health Organization (WHO) Multi-Drug Therapy (MDT) for adult leprosy, the correct dose of Rifampicin is 600 mg administered once a month under supervision. A dose of 450 mg (Option D) is incorrect for adults; this lower dose is specifically designated for children aged 9–14 years. Regarding the correct dosages, Dapsone 100 mg (Option A) is the daily self-administered dose for both paucibacillary and multibacillary adult patients. For multibacillary cases, Clofazimine is administered as a 300 mg monthly supervised dose (Option C) combined with a 50 mg daily self-administered dose (Option B). Because the adult regimen

relies on the higher 600 mg Rifampicin dose to ensure bactericidal activity against Mycobacterium leprae, 450 mg is inadequate and therefore the incorrect adult dosage in this list.

Question 37. A patient receives succinylcholine during surgery for muscle relaxation and soon develops hyperthermia, muscle rigidity, tremors, and tachycardia. What is the most appropriate treatment for this condition?

A. Neostigmine

B. Dantrolene sodium

C. Atropine

D. Midazolam

Correct answer: B

The clinical features of hyperthermia, muscle rigidity, tremors, and tachycardia following succinylcholine administration indicate Malignant Hyperthermia. This life-threatening genetic condition is triggered by certain volatile anesthetics and depolarizing relaxants like succinylcholine. The specific treatment and antidote is Dantrolene sodium. It works by inhibiting calcium release from the sarcoplasmic reticulum in skeletal muscle, thereby reversing the hypermetabolic state. Neostigmine (Option A) is an acetylcholinesterase inhibitor used to reverse non-depolarizing blocks; it is contraindicated here as it can exacerbate the metabolic crisis by increasing acetylcholine. Atropine (Option C) is an anticholinergic that could worsen the condition by inhibiting sweating and increasing heart rate. Midazolam (Option D), a benzodiazepine, provides sedation but does not address the underlying calcium-mediated pathophysiology. Immediate management also involves stopping the trigger, hyperventilation with 100% oxygen, and active cooling. Immediate administration of Dantrolene is crucial to prevent severe complications and mortality.

Question 38. A patient presents with muscle weakness, diarrhea, and bradycardia and is diagnosed with organophosphate poisoning. Atropine is administered as part of the treatment. Which of the following effects would not be observed after atropine administration?

A. Bradycardia

B. Muscle weakness

C. Diaphoresis

D. Nasal discharge

Correct answer: A

Organophosphate (OP) poisoning causes cholinergic overstimulation by inhibiting acetylcholinesterase, leading to an accumulation of acetylcholine at both muscarinic and nicotinic receptors. Atropine is a muscarinic antagonist specifically used to reverse muscarinic symptoms such as bradycardia, bronchorrhea, and diarrhea. Therefore, bradycardia is "not seen" after successful atropinization; the goal of treatment is to increase the heart rate to above 80 beats/minute. Muscle weakness (Option B) is a nicotinic effect at the neuromuscular junction and is not reversed by atropine, so it remains present until oximes (like pralidoxime) are given. Diaphoresis (Option C) and nasal discharge (Option D) are muscarinic effects that were present initially but should improve or resolve after atropine administration. Successful treatment is clinically monitored by looking for signs of "atropinization," including dry axillae, clear breath sounds on auscultation, and dilated pupils.

Question 39. What is the mechanism of action of botulinum toxin?

A. Inhibits acetylcholine release from the presynaptic terminal

B. Inhibits acetylcholine reuptake

C. Blocks the postsynaptic acetylcholine receptor

D. Inhibits acetylcholinesterase

Correct answer: A

Botulinum toxin prevents muscle contraction by inhibiting the release of acetylcholine (ACh) at the neuromuscular junction. It achieves this by cleaving SNARE proteins, such as SNAP-25, synaptobrevin, and syntaxin, which are essential for the fusion of neurotransmitter vesicles with the presynaptic membrane. This blockade leads to flaccid paralysis. Inhibiting ACh reuptake (Option B) is incorrect because ACh is typically degraded in the synapse, not reuptaken. Blocking postsynaptic receptors (Option C) describes the action of neuromuscular blockers like curare. Inhibiting acetylcholinesterase (Option D) is the mechanism for organophosphates and neostigmine, which increase ACh levels. Botulinum toxin is clinically used for treating dystonias and for cosmetic purposes (Botox) to relax muscles. Severe toxicity causes botulism, which can result in respiratory failure.

Question 40. What is the most common causative organism of prosthetic heart valve endocarditis?

A. S. viridans

B. S. aureus

C. S. epidermidis

D. Staphylococcus

Correct answer: C

Staphylococcus epidermidis, a coagulase-negative Staphylococcus (CoNS), is the most common causative agent of prosthetic valve endocarditis (PVE). It accounts for the majority of cases occurring within the first year after surgery due to its ability to form resilient biofilms on artificial materials. Regarding the distractors, S. viridans (Option A) is the most common cause of native valve endocarditis but is less frequent in prosthetic cases. S. aureus (Option B) is a highly virulent organism that causes acute endocarditis and is the second most common in PVE, but overall numbers favor S. epidermidis. "Staphylococcus" (Option D) is a genus-level term that is too non-specific for this question. Therefore, because of its unique affinity for prosthetic devices, S. epidermidis is the correct microbiological answer.

Question 41. In the diagnosis of typhus, an antigen derived from Proteus species is used. What is this type of antigen known as?

A. Sequestered antigen

B. Super antigen

C. Iso antigen

D. Heterophile antigen

Correct answer: D

The Weil-Felix test for diagnosing typhus uses certain strains of Proteus bacteria because they share common antigens with Rickettsia. These are called heterophile antigens, defined as antigens that occur in unrelated species but are similar enough to cause cross-reactivity with the same antibodies. For example, antibodies produced during epidemic typhus agglutinate with Proteus OX19. Regarding the distractors, sequestered antigens (Option A) are hidden from the immune system (e.g., lens protein) and do not involve cross-reactivity. Superantigens (Option B) are potent immune activators like TSST-1 that bypass normal antigen presentation. Isoantigens (Option C) vary among individuals of the same species, such as blood group antigens. Because the test relies specifically on the "unrelated" cross-reaction between Proteus and Rickettsia, heterophile antigen is the correct term.

Question 42. A 39-year-old patient with HIV infection and a CD4 count of 139 cells/µL presents with altered mental status and impaired consciousness. Cerebrospinal fluid examination shows a positive finding. Which organism is most likely responsible for this presentation?

A. Cryptococcus neoformans

B. Aspergillus

C. Toxoplasma gondii

D. Mycobacterium tuberculosis

Correct answer: A

The patient’s HIV status with a low CD4 count (139 cells/µL), altered sensorium, and a positive CSF India ink preparation strongly indicates Cryptococcus neoformans. This encapsulated yeast is a leading cause of opportunistic meningitis in severely immunocompromised individuals. The India ink preparation highlights the thick polysaccharide capsule, which appears as a clear halo surrounding the budding yeast cells. Aspergillus (Option B) is a filamentous fungus that primarily causes pulmonary disease and is not typical for India ink-positive meningitis. Toxoplasma (Option C) and tuberculosis (Option D) are common HIV complications but do not produce the encapsulated yeast findings seen here. Symptoms of cryptococcal meningitis include headache, fever, memory loss, and cranial nerve paresis. Other diagnostic tools include mucicarmine staining and latex agglutination tests for capsular antigen. Treatment involves an induction phase with Liposomal Amphotericin B and Flucytosine, followed by long-term maintenance therapy with Fluconazole.

Question 43. A patient is positive for HBsAg and anti-HBc IgM. What is the most likely diagnosis?

A. Acute hepatitis

B. Chronic hepatitis

C. Recovery phase

D. Vaccination

Correct answer: A

The presence of Hepatitis B surface antigen (HBsAg) along with IgM antibodies to the Hepatitis B core antigen (anti-HBc IgM) is diagnostic of acute Hepatitis B infection. HBsAg is the first marker to appear and indicates a current infection, while anti-HBc IgM specifically confirms that the infection is recent (within the last 6 months). In chronic Hepatitis B (Option B), HBsAg persists for more than 6 months, and anti-HBc IgG is present instead of IgM. The recovery phase (Option C) is defined by the disappearance of HBsAg and the appearance of anti-HBs and anti-HBc IgG. Vaccination (Option D) leads only to the development of anti-HBs antibodies; HBsAg and anti-HBc markers would both be negative in a vaccinated individual. The "window period" occurs when HBsAg has disappeared but anti-HBs has not yet appeared; in this phase, anti-HBc IgM may be the only detectable marker. Correct interpretation is vital for management and assessing infectivity.

Question 44. A farmer presents with fever and subconjunctival hemorrhage, and the microscopic agglutination test is found to be positive. What is the most

likely diagnosis?

A. Brucella

B. Leptospira

C. E coli

D. Staph aureus

Correct answer: B

A farmer presenting with fever, subconjunctival hemorrhage, and a positive microscopic agglutination test (MAT) points toward Leptospirosis. Leptospirosis is a zoonotic bacterial disease caused by Leptospira interrogans, often transmitted through contact with water or soil contaminated by animal urine. Clinical syndromes range from a mild anicteric illness with conjunctival suffusion to severe Weil's disease involving jaundice and renal failure. MAT is considered the gold standard diagnostic test for detecting specific antibodies. Brucella (Option A) causes undulant fever and hepatosplenomegaly but not subconjunctival hemorrhage; it is diagnosed via the serum agglutination test. E. coli (Option C) and Staph aureus (Option D) cause diverse infections but are not associated with subconjunctival hemorrhage or a positive MAT. Early antibiotic therapy with doxycycline or penicillin is crucial for prophylaxis and treatment. Occupational exposure makes farmers and sewage workers especially vulnerable.

Question 45. A patient presents with fever, headache, vomiting, neck stiffness, and petechial rashes over the lower limbs. Which organism is most likely responsible for this presentation?

A. Neisseria meningitidis

B. Clostridium perfringens

C. Cryptococcus neoformans

D. Clostridium difficile

Correct answer: A

The patient's symptoms of fever, neck rigidity, headache, and vomiting combined with petechial rashes on the limbs are classic for meningococcal meningitis caused by Neisseria meningitidis. This gram-negative diplococcus is a major cause of bacterial meningitis and septicemia. Petechial or purpuric rashes occur in over 80% of cases due to endotoxin-induced vascular injury and intravascular thrombosis. Clostridium perfringens (Option B) causes gas gangrene but not meningitis. Cryptococcus neoformans (Option C) typically presents as chronic meningitis in immunocompromised patients and lacks a petechial rash. Clostridium difficile (Option D) is responsible for antibiotic-associated diarrhea. Severe meningococcal septicemia can lead to Waterhouse-Friderichsen syndrome, featuring massive purpura and bilateral adrenal hemorrhage. CSF analysis typically shows elevated protein, decreased glucose, and a predominance of neutrophils. Rapid diagnosis and antibiotic administration are essential to

reduce mortality.

Question 46. A patient presents with a history of a thorn prick injury sustained one week earlier. Subsequently, he developed a chain of ulcers distributed along the course of the lymphatic vessels. Which organism is most likely responsible for this condition?

A. Coccidioides immitis

B. Aspergillus flavus

C. Sporothrix schenckii

D. Trichophyton rubrum

Correct answer: C

The history of a thorn prick followed by ulcerative lesions along the lymphatic drainage is characteristic of sporotrichosis. This subcutaneous infection is caused by the dimorphic fungus Sporothrix schenckii, which is commonly found on thorns and rose bushes. It typically affects gardeners and laborers, spreading through the lymphatic channels to create nodules that ulcerate. Coccidioides immitis (Option A) primarily causes a respiratory illness known as valley fever and is not associated with this specific lymphatic pattern. Aspergillus flavus (Option B) is associated with invasive aspergillosis and aflatoxin production, not trauma-induced lymphatic ulcers. Trichophyton rubrum (Option D) is a dermatophyte causing superficial skin infections like athlete’s foot rather than deep lymphatic spread. Diagnosis is often confirmed via microscopy showing characteristic "cigar-shaped" yeast cells.

Question 47. A Tzanck smear prepared from a vesicle shows multinucleated giant cells. What is the diagnosis?

A. HIV

B. HSV

C. HPV

D. EBV

Correct answer: B

A Tzanck smear showing multinucleated giant cells with "ground-glass" chromatin is pathognomonic for Herpes Simplex Virus (HSV) and Varicella-Zoster Virus (VZV) infections. These "Tzanck cells" result from the virus-induced fusion of infected keratinocytes. HIV (Option A) is primarily diagnosed via serological tests like ELISA or PCR and does not produce these specific cellular changes on a smear. HPV (Option C) is associated with koilocytes—epithelial cells with perinuclear halos—rather than multinucleated giant cells. EBV (Option D) is associated with "Downey cells" (atypical lymphocytes) on a peripheral blood smear, not a

Tzanck smear. The Tzanck smear is a rapid bedside diagnostic tool for vesicular viral rashes, though definitive identification of the specific herpes virus may require further testing like PCR or viral culture.

Question 48. Which of the following is not caused by food adulteration?

A. Fluorosis

B. Epidemic dropsy

C. Neurolathyrism

D. Endemic ascites

Correct answer: A

Fluorosis is a chronic condition caused by excessive intake of fluoride, primarily through contaminated drinking water or dental products, rather than the deliberate or accidental adulteration of food. It results from high geological fluoride concentrations in groundwater. In contrast, the other options are classic examples of health conditions caused by food adulteration. Epidemic dropsy (Option B) is caused by mustard oil adulterated with Argemone oil. Neurolathyrism (Option C) results from consuming pulses adulterated with Lathyrus sativus (Kesari dal), which contains the neurotoxin BOAA. Endemic ascites (Option D) is caused by food contaminated with pyrrolizidine alkaloids from plants like Crotalaria. Since fluorosis is an environmental waterborne issue, it is the correct answer as the exception to the food-adulteration list.

Question 49. Which of the following is the correct arrangement about the levels of health care?

Examination Paper January 2025 Question

A. 1- Medical colleges and hospitals are primary level, 2- CHC is secondary level, 3- Sub Centre and PHC are tertiary

B. 1- Sub Centre and PHC are primary level, 2- CHC is secondary level, 3- Medical colleges and hospitals are tertiary

C. 1- CHC is primary level, 2- Sub Centre and PHC are secondary level, 3- Medical colleges and hospitals are tertiary

D. 1- PHC is primary level, 2- Sub Centre is secondary level, 3- Medical colleges and hospitals are tertiary

Correct answer: B

The Indian healthcare system is structured into three tiers:

1.

Primary Level: Sub Centres and Primary Health Centres (PHCs) act as the first point of contact for basic curative and preventive services.

2.

Secondary Level: Community Health Centres (CHCs) and District Hospitals provide specialized care and serve as referral centers for PHCs.

3.

Tertiary Level: Medical colleges, regional hospitals, and super-specialty institutions handle complex cases requiring advanced expertise.

Option A is incorrect as it swaps primary and tertiary levels. Option C wrongly classifies CHCs as primary. Option D incorrectly places Sub Centres at the secondary level. This tiered structure ensures an efficient referral chain, allowing basic ailments to be managed locally while reserving advanced resources for critical cases.

Question 50. Which of the following is not a food adulteration disease?

A. Lathyrism

B. Fluorosis

C. Dropsy

D. Aflatoxicosis

Correct answer: B

Fluorosis is not a food adulteration disease; rather, it is caused by the chronic ingestion of naturally occurring excess fluoride, primarily through contaminated drinking water. It leads to dental mottling and skeletal deformities. In contrast, Lathyrism (Option A) is a classic food adulteration disease caused by the consumption of Lathyrus sativus (Khesari dal) containing the neurotoxin -ODAP, which causes spastic paraparesis. Dropsy (Option C) results from mustard oil adulterated with Argemone mexicana seeds, leading to epidemic edema and heart failure. Aflatoxicosis (Option D) is caused by aflatoxins produced by Aspergillus species contaminating stored grains and nuts, which can lead to liver cirrhosis and hepatocellular carcinoma. While lathyrism, dropsy, and aflatoxicosis involve toxins added to or contaminating food supplies, fluorosis is an environmental intoxication.

ENT

Question 51. A young man presents with weakness affecting the lower half of the right side of his face, resulting in drooping of the angle of the mouth. He is unable to raise his eyebrows on either side. What is the most appropriate diagnosis for this

presentation?

A. Infranuclear facial palsy on right side

B. Supranuclear facial palsy on left side

C. Infranuclear facial on left side

D. Supranuclear facial palsy on right side

Correct answer: A

An infranuclear (Lower Motor Neuron) facial palsy occurs when the facial nerve (CN VII) is damaged after exiting the brainstem, causing ipsilateral paralysis of all facial muscles. This includes the lower face, resulting in mouth drooping, and the upper face, preventing the patient from raising their eyebrow or closing their eye on the affected side. In contrast, a supranuclear (Upper Motor Neuron) lesion (Options B and D) spares the forehead muscles due to bilateral cortical innervation of the upper facial nucleus; only the contralateral lower face would be weak. Since this patient has drooping on the right side and cannot raise the right eyebrow (part of "both sides" mentioned in clinical signs), it confirms a right-sided infranuclear lesion. Left-sided palsy (Option C) is ruled out as the symptoms are on the right

Question 52. A 45-year-old man is admitted with respiratory distress. CT imaging reveals a nasal polyp associated with fluid accumulation in a paranasal sinus. Obstruction of drainage from which structure is most likely responsible for this finding?

A. Ethmoidal sinus

B. Sphenoidal sinus

C. Frontal sinus

D. Maxillary sinus

Correct answer: D

The CT scan findings show a nasal polyp obstructing the drainage of the maxillary sinus. The maxillary sinus (Antrum of Highmore) is the largest paranasal sinus and drains into the middle meatus of the nose via the maxillary ostium. When a polyp grows in the middle meatus, it blocks this ostium, leading to secondary sinusitis and fluid accumulation. Regarding the distractors, the ethmoidal sinuses (Option A) are multiple small cells; the anterior ones drain to the middle meatus, but the large fluid collection shown is within the maxilla. The sphenoidal sinus (Option B) drains into the sphenoethmoidal recess. The frontal sinus (Option C) also drains to the middle meatus, but its obstruction would show fluid in the forehead region on CT. Thus, the anatomical location of the fluid collection confirms maxillary sinus involvement.

Question 53. A 49-year-old woman from Nagaland presents with right-sided hearing loss and tinnitus.

Examination reveals a dull tympanic membrane along with enlarged lymph nodes in the posterior triangle of the neck. What is the most appropriate management for this condition?

A. Grommet insertion + Steroids

B. Grommet insertion

C. Steroids

D. Radiotherapy

Correct answer: D

The patient’s symptoms—unilateral hearing loss and tinnitus with a dull tympanic membrane—indicate serous otitis media due to Eustachian tube obstruction. In a patient from Nagaland (an endemic area) with enlarged posterior triangle lymph nodes, this presentation is highly suspicious for nasopharyngeal carcinoma (NPC). Radiotherapy is the definitive management for NPC, as the tumor is highly radiosensitive. Regarding the distractors, grommet insertion and steroids (Options A, B, and C) might treat the symptoms of fluid in the ear but would fail to address the underlying malignancy causing the obstruction. A unilateral ear block in an adult, especially from Northeast India, must always be investigated for malignancy. Therefore, because NPC is the primary diagnosis suggested by the clinical cluster, radiotherapy is the standard treatment.

Question 54. A patient presents to the outpatient department with complaints of hearing loss. On examination, the Rinne test is positive in the left ear and negative in the right ear. Weber’s test shows lateralization to the left ear, and bone conduction is reduced in the right ear but normal in the left ear. How should these findings be interpreted?

A. Sensorineural hearing loss in left ear

B. Sensorineural hearing loss in right ear

C. Conductive hearing loss in left ear

D. Conductive hearing loss in right ear.

Correct answer: B

Interpretation of tuning fork tests requires a combined analysis of all results. In this case, a negative Rinne in the right ear suggests either conductive loss or a "false negative" due to profound sensorineural hearing loss (SNHL). The bone conduction test is the deciding factor; because it is reduced in the right ear, it confirms sensorineural involvement. In SNHL, the Weber test lateralizes to the better-hearing ear. Since the sound lateralizes to the left, the left ear is the better ear, and the right ear is affected by SNHL. Options C and D (conductive loss)

are ruled out because conductive loss would show lateralization to the poorer ear in the Weber test and normal bone conduction. Option A is incorrect as the left ear shows a positive Rinne and normal bone conduction, indicating it is likely the healthy ear. Thus, the clinical cluster confirms SNHL in the right ear.

Question 55. A patient presents to the outpatient department with complaints of greenish-black material in the nasal cavity accompanied by a foul (fetid) smell. What is the most likely diagnosis?

A. Allergic rhinitis

B. Atrophic rhinitis

C. Rhinitis caseosa

D. Rhinitis sicca

Correct answer: B

The patient’s description of greenish-black crusts and a "merciful" foul smell (ozena) is pathognomonic for Atrophic Rhinitis. The term "merciful" refers to the fact that while the smell is offensive to others, the patient is unaware of it due to concurrent atrophy of the olfactory nerves (anosmia). This condition involves chronic atrophy of the nasal mucosa and underlying turbinate bones. Allergic rhinitis (Option A) presents with clear watery discharge, sneezing, and itching, not crusting. Rhinitis caseosa (Option C) features "cheese-like" foul material and is typically associated with extensive nasal polyps or infection. Rhinitis sicca (Option D) involves simple dryness of the mucosa, often in hot environments, but lacks the characteristic greenish crusts and ozena. Management includes regular nasal douching with alkaline solutions to clear the crusts and prevent secondary infections like Klebsiella ozaenae.

Question 56. A patient with chronic suppurative otitis media (CSOM) presents to the outpatient department with seizures. On further examination and evaluation, homonymous hemianopia and epilepsy are noted. Based on the CT scan provided, identify the most likely diagnosis.

A. Temporal abscess

B. Cerebellar abscess

C. Extradural abscess

D. Meningitis

Correct answer: A

The patient's history of Chronic Suppurative Otitis Media (CSOM) followed by seizures and homonymous hemianopia strongly suggests a temporal lobe abscess. A brain abscess is a dangerous complication of CSOM, resulting from the direct spread of infection through the thin

tegmen tympani. Seizures occur due to cortical irritation, while homonymous hemianopia indicates that the abscess is compressing the optic radiations (Meyer's loop) which pass through the temporal lobe. A cerebellar abscess (Option B) typically presents with ataxia and vertigo rather than seizures or visual field defects. An extradural abscess (Option C) causes severe localized pain but usually lacks focal neurological signs like hemianopia. Meningitis (Option D) presents with global signs like neck stiffness and altered mental status but not a localized ring-enhancing mass on CT. Prompt neurosurgical intervention and high-dose antibiotics are required for management.

Question 57. A 6-year-old child is evaluated and found to have a refractive error of −2 diopters in the right eye and +1 diopter in the left eye. The fundus examination and visual acuity are normal. What is the most likely diagnosis in this case?

A. Myopia

B. Hyperopia

C. Anisometropia

D. Amblyopia

Correct answer: C

Anisometropia is defined as a significant difference in refractive power between the two eyes, regardless of whether the refractive error is myopia, hyperopia, or astigmatism. Clinically, a difference of ≥2 diopters (commonly ≥2–2.5 D) between the eyes is considered significant.

In this child, the right eye has myopia (−2 D) and the left eye has hyperopia (+1 D). The interocular difference is 3 diopters, which clearly fulfills the diagnostic criteria for anisometropia.

While the child does have myopia (Option A) in one eye and hyperopia (Option B) in the other, these terms describe individual refractive errors and do not explain the bilateral imbalance. Amblyopia (Option D) is a possible complication of untreated anisometropia due to unequal visual input to the brain, but it is not the diagnosis here, especially since the child currently has normal visual acuity and fundus findings.

Therefore, the most accurate and comprehensive diagnosis explaining the refractive discrepancy is anisometropia.

Question 58. A patient presents with breathlessness and is diagnosed with a Pancoast tumor. Which of the following clinical features is least likely to be associated with this condition?

A. Anhidrosis

B. Miosis

C. Ptosis

D. Exophthalmos

Correct answer: D

A Pancoast tumor is an apical lung cancer that often invades the sympathetic chain, leading to Horner’s syndrome. Horner’s syndrome is characterized by a specific triad: miosis (constricted pupil), ptosis (drooping eyelid), and anhidrosis (loss of sweating) on the affected side. Enophthalmos (a recessed eye) is also frequently seen. Exophthalmos (Option D), which is the bulging or protrusion of the eyeball, is the opposite of enophthalmos and is typically associated with conditions like Graves' disease (thyroid eye disease) or orbital tumors, not sympathetic nerve damage. Anhidrosis (Option A) occurs specifically in preganglionic lesions like Pancoast tumors. Miosis (Option B) results from the loss of sympathetic innervation to the pupillary dilator muscle. Ptosis (Option C) occurs due to paralysis of the superior tarsal (Müller’s) muscle. Therefore, because exophthalmos represents a different pathological mechanism, it is not a finding associated with Pancoast tumor-induced Horner’s syndrome.

Question 59. Which of the following statements is correct regarding indirect ophthalmoscopy?

A. The image is erect and real.

B. The condenser lens needs to be held close to the eye.

C. It provides 15x magnification.

D. The image is real and inverted.

Correct answer: D

Indirect ophthalmoscopy is a fundamental technique for examining the posterior segment of the eye, particularly the peripheral retina. Unlike direct ophthalmoscopy, which produces an erect and virtual image, indirect ophthalmoscopy produces a real and inverted (upside-down and reversed) image. It utilizes a strong convex condenser lens (typically +20D) held at a distance from the patient's eye, not close to it (Option B). This technique provides a much larger field of view but lower magnification, typically around 3–5x (Option C). In contrast, direct ophthalmoscopy provides high magnification (15x) and an erect, virtual image (Option A) but has a very limited field of view. Indirect ophthalmoscopy is essential for assessing conditions like retinal detachment because it allows for binocular vision and a wide panoramic view of the fundus under a bright light source in a darkroom setting. Therefore, the characteristic "real and inverted" image is the defining optical property of this method.

Question 60. A patient presents with loss of the right visual field in both eyes while central (macular) vision is preserved. What is the most likely diagnosis?

A. Homonymous Hemianopia with Macular

Sparing

B. Heteronymous Hemianopia with Central

Sparing

C. Optic Chiasm Lesion

D. Optic Tract Lesion

Correct answer: A

A right-sided field defect in both eyes (right homonymous hemianopia) with central vision intact is characteristic of Homonymous Hemianopia with Macular Sparing. This condition typically results from a lesion in the contralateral (left) primary visual cortex, often following a stroke in the posterior cerebral artery (PCA) territory. Macular sparing occurs because the macular representation in the visual cortex has a dual blood supply from both the PCA and the middle cerebral artery (MCA). Heteronymous hemianopia (Option B) involves different sides of the visual field being lost (e.g., bitemporal), which is not the case here. An optic chiasm lesion (Option C) classically causes bitemporal hemianopia due to crossing nasal fibers. An optic tract lesion (Option D) causes a complete homonymous hemianopia but usually does not demonstrate macular sparing because it occurs before the cortical level of dual blood supply. This finding is key for cortical localization.

Question 61. A neonate with bilateral cataracts, patent ductus arteriosus (PDA), and “salt and pepper” retinopathy is most likely suffering from congenital rubella infection.

A. Rubella

B. CMV

C. Toxoplasma

D. Varicella

Correct answer: A

The triad of bilateral cataracts, patent ductus arteriosus (PDA), and "salt and pepper" retinopathy is diagnostic of Congenital Rubella Syndrome (CRS). Rubella is most dangerous when contracted during the first trimester, when maternal viremia can lead to severe developmental defects. Cataracts are the most common ocular abnormality in CRS, while PDA and pulmonary artery stenosis are the most frequent cardiac findings. Congenital CMV (Option B) usually presents with jaundice, microcephaly, and chorioretinitis rather than cataracts or heart defects. Congenital toxoplasmosis (Option C) is associated with intracranial calcifications, hydrocephalus, and chorioretinitis. Congenital varicella (Option D) presents with cicatricial skin scarring, limb hypoplasia, and microphthalmia. CRS is prevented through maternal vaccination with the live attenuated MMR vaccine, which is essential for women of childbearing age but contraindicated during pregnancy. Early identification and supportive management are crucial

for minimizing long-term disability.

Question 62. The most likely condition is traumatic cataract, which can develop months after blunt ocular trauma and commonly presents with progressive blurring of vision.

A. Iridodialysis

B. Ankyloblepharon

C. Vossius Ring

D. Cycloiriditis

Correct answer: A

Iridodialysis is the traumatic detachment of the iris from its root at the ciliary body, which typically occurs after non-penetrating blunt force trauma. The resulting structural change often creates a "D-shaped" pupil and a visible biconvex gap at the periphery, leading to symptoms like blurring of vision, photophobia, or monocular diplopia. Ankyloblepharon (Option B) refers to the abnormal fusion of the eyelid margins and is not an internal iris injury. Vossius Ring (Option C) is a pigment ring on the anterior lens capsule shaped exactly like the pupil, also caused by blunt trauma, but it does not cause a displaced pupil. Cycloiriditis (Option D) is an inflammation of the iris and ciliary body; while trauma can be a trigger, it presents with acute pain and redness rather than a structural peripheral gap. Diagnosis is made by clinical examination and slit-lamp biomicroscopy, and treatment depends on the severity of the visual symptoms.

Question 63. A 5-month-old infant is brought with a history of rhythmic elevation and depression of the left upper eyelid occurring during breastfeeding or thumb sucking, which disappears when feeding stops. What is the most likely diagnosis?

A. Marcus Gunn Jaw-Winking Syndrome

B. Lagophthalmos

C. Myasthenia Gravis

D. 3rd CN palsy

Correct answer: A

Marcus Gunn Jaw-Winking Syndrome is a congenital condition characterized by an abnormal synkinetic connection between the mandibular branch of the trigeminal nerve (CN V3) and the oculomotor nerve (CN III). Specifically, the branch of the trigeminal nerve that supplies the lateral pterygoid muscle (used for sucking and chewing) is misdirected to the levator palpebrae superioris (LPS) muscle of the eyelid. This results in the upper eyelid moving up and down in rhythm with jaw movements, such as during breastfeeding. Lagophthalmos (Option B) is the inability to close the eye completely. Myasthenia Gravis (Option C) presents with fatigable

ptosis that worsens throughout the day, not jaw-related movement. A 3rd cranial nerve palsy (Option D) causes ptosis and limited eye motility but lacks the specific jaw-winking synchronization. This syndrome is typically unilateral and is most noticeable during infancy when the child is feeding.

Question 64. A case involving the death of a married woman within three years of marriage is reported. Who is responsible for conducting the inquest in this case?

Examination Paper January 2025 Question

A. Judicial

B. Police

C. Coroner

D. Magistrate

Correct answer: D

In India, according to Section 196 of the Bharatiya Nagarik Suraksha Sanhita (BNSS), a Magisterial Inquest is mandatory in cases involving the death of a woman within seven years of her marriage under suspicious circumstances. Since this case involves a death within three years of marriage, it falls strictly under the purview of a Magistrate (Executive or Judicial) to investigate potential foul play, such as dowry death or homicide. A Police Inquest (Option B) is the standard procedure for most unnatural deaths, but it is superseded by the Magistrate in this specific legal context. "Judicial" (Option A) is a broad term; while a Judicial Magistrate can perform the inquest, the correct specific authority is the Magistrate. The Coroner system (Option C) does not exist in modern India, as its functions were replaced by the Magisterial system. Therefore, a Magistrate must conduct the inquiry to ensure a thorough and impartial legal investigation.

Question 65. A TB patient with HIV begins ART and experiences deterioration in health after 2 months. What is the likely cause?

A. Development of drug resistance to TB drugs

B. Drug-drug interactions between TB and ART medications

C. Immunological changes in the body

D. Development of drug resistance to ART

Correct answer: C

The clinical deterioration seen roughly two months after initiating Antiretroviral Therapy (ART) in an HIV-TB co-infected patient is most likely due to Immune Reconstitution Inflammatory

Syndrome (IRIS). This condition arises from immunological changes where the recovering immune system mounts an exaggerated inflammatory response against the pre-existing Mycobacterium tuberculosis antigens. Symptoms typically include worsening fever and enlarging lymph nodes. Regarding the distractors, drug resistance (Options A and D) generally develops over a longer period and presents with a failure to clear the viral or bacterial load rather than an acute inflammatory flare. While drug-drug interactions (Option B) between rifampicin and certain ART drugs like protease inhibitors are common, they typically lead to therapeutic failure rather than the paradoxical clinical worsening characteristic of IRIS. Management involves continuing both treatments while managing inflammation.

Question 66. A patient with hypertension is found to have laboratory abnormalities including hypernatremia, hypokalemia, and metabolic alkalosis. What is the most likely diagnosis?

A. Conn's Syndrome

B. Addison's Disease

C. Diabetes Insipidus

D. Cushing's Disease

Correct answer: A

Conn’s syndrome (primary hyperaldosteronism) is the classic diagnosis for a hypertensive patient with hypernatremia, hypokalemia, and metabolic alkalosis. Excess aldosterone secretion, usually from an adrenal adenoma, leads to increased sodium reabsorption (causing hypertension and hypernatremia) and increased renal excretion of potassium and hydrogen ions. Addison’s disease (Option B) is the opposite; it presents with hypotension, hyponatremia, and hyperkalemia. Diabetes Insipidus (Option C) causes hypernatremia due to free water loss but is not associated with hypertension, hypokalemia, or metabolic alkalosis. Cushing’s disease (Option D) primarily involves excess cortisol; while it can cause hypertension, it does not typically present with this specific triad of electrolyte and acid-base disturbances unless there is very severe ectopic ACTH production. Therefore, primary aldosterone overproduction is the most probable physiological explanation for these laboratory findings.

Question 67. A patient with a history of recurrent vomiting undergoes arterial blood gas analysis, which shows a pH of 7.5, $PaCO_2$ of 48 mm Hg, and HCO_3^- of 30 mm Hg. Based on these findings, what is the most likely acid–base disorder?

A. Metabolic alkalosis

B. Metabolic acidosis

C. Respiratory acidosis

D. Respiratory alkalosis

Correct answer: A

The blood gas findings show an elevated pH (7.5), confirming alkalosis. The primary cause is an elevated bicarbonate (HCO_3^-) of 30 mEq/L, which results from the loss of gastric hydrochloric acid (HCl) during vomiting. The body responds through respiratory compensation—hypoventilation to retain —which explains the elevated of 48 mm Hg. Metabolic acidosis (Option B) would feature a low pH and low . Respiratory acidosis (Option C) is characterized by a low pH and high . Respiratory alkalosis (Option D) involves a high pH with a low due to hyperventilation. Thus, the clinical context of vomiting combined with the metabolic laboratory values clearly points to metabolic alkalosis with partial respiratory compensation as the most likely acid-base disturbance in this patient.

Question 68. Which clinical or investigative factor is most helpful in differentiating acute kidney injury (AKI) from chronic kidney disease (CKD)?

A. Creatinine levels

B. Albumin levels

C. Urinary output

D. Blood urea nitrogen (BUN)

Correct answer: B

Albumin levels are a highly useful differentiating factor, as persistent hypoalbuminemia and significant albuminuria (30 mg/24 hours) are defining characteristics of Chronic Kidney Disease (CKD). In contrast, albumin levels in Acute Kidney Injury (AKI) often remain relatively normal unless there is pre-existing damage. Creatinine (Option A) and BUN (Option D) are elevated in both conditions, making them unreliable for differentiation based on a single measurement. While urinary output (Option C) can decrease in both, oliguria is more sudden and common in AKI, but can also occur in end-stage CKD. CKD is defined by structural or functional abnormalities persisting for more than 3 months, whereas AKI is an abrupt rise in creatinine over 48 hours. Therefore, chronic protein loss makes low albumin a hallmark of CKD.

Question 69. In the context of mitral stenosis, which clinical feature is typically observed?

A. Loud S1

B. Absent S1

C. S3 gallop

D. Muffled heart sounds

Correct answer: A

A loud, snapping first heart sound (S1) is a hallmark of mitral stenosis. This occurs because the mitral leaflets are thickened but still mobile, and the high pressure gradient in the left atrium causes them to slam shut forcefully at the start of systole. An absent S1 (Option B) is more characteristic of severe mitral regurgitation where the leaflets fail to coapt. An S3 gallop (Option C) is associated with volume overload and heart failure, which is not typical for the restricted filling of mitral stenosis. Muffled heart sounds (Option D) suggest pericardial effusion or severe obesity. Other classic findings of mitral stenosis include an opening snap and a mid-diastolic rumbling murmur best heard at the apex with the patient in the left lateral position.

Question 70. Which of the following is associated with a Graham-Steel murmur?

A. Ventricular septal defect (VSD)

B. Hypertrophic obstructive cardiomyopathy (HOCM)

C. Pulmonary regurgitation

D. Aortic regurgitation

Correct answer: C

The Graham-Steel murmur is a high-pitched, early diastolic decrescendo murmur caused by pulmonary regurgitation in the setting of severe pulmonary hypertension. It is heard best at the left upper sternal border. Ventricular septal defect (Option A) classically causes a harsh holosystolic murmur. Hypertrophic obstructive cardiomyopathy (Option B) presents with a crescendo-decrescendo systolic murmur that increases with the Valsalva maneuver. Aortic regurgitation (Option D) also causes a diastolic decrescendo murmur, but it is heard at the right upper or left mid-sternal border and may be associated with an "Austin Flint" murmur at the apex. Therefore, the Graham-Steel murmur specifically indicates pulmonary valve incompetence resulting from dilation of the pulmonary artery due to high pressure.

Question 71. A patient with a recent history of throat infection presents with a characteristic water hammer pulse. What is the most likely diagnosis?

A. Rheumatic fever with aortic regurgitation

B. Infective endocarditis

C. Mitral stenosis

D. Aortic stenosis

Correct answer: A

A "water hammer" (collapsing) pulse, also known as Corrigan's pulse, is pathognomonic for aortic regurgitation. The history of a throat infection points to a prior streptococcal infection

triggering rheumatic fever, which is a major cause of valvular damage, particularly affecting the aortic valve. Infective endocarditis (Option B) can cause aortic regurgitation but usually presents with acute fever and embolic signs like splinter hemorrhages. Mitral stenosis (Option C) classically presents with a small, low-volume pulse rather than a collapsing one. Aortic stenosis (Option D) features a "pulsus parvus et tardus," which is slow-rising and low-amplitude. The water hammer pulse results from the rapid ejection of a large stroke volume into the aorta followed by immediate backflow into the left ventricle during diastole.

Question 72. The CSF findings in bacterial meningitis would include which of the following?

A. Elevated protein and decreased glucose

B. Normal white blood cell count

C. Decreased protein and elevated glucose

D. Elevated WBC count with normal glucose

Correct answer: A

Bacterial meningitis is characterized by distinct cerebrospinal fluid (CSF) abnormalities: elevated protein levels (>100 mg/dL) due to blood-brain barrier disruption and decreased glucose (<40% of blood glucose) because of utilization by bacteria and neutrophils. It also features a high white blood cell count, predominantly polymorphonuclear neutrophils (PMNs). Options B and D are incorrect because the glucose level is almost always low in bacterial infections. Option C is the opposite of the typical finding. In contrast, viral meningitis (Option D-like) usually has normal glucose and a lymphocyte predominance. Fungal or tubercular meningitis also has low glucose but typically features lymphocyte predominance rather than the high PMNs seen in bacterial causes. Therefore, the combination of high protein and low glucose is the classic biochemical hallmark of bacterial meningitis.

Question 73. A patient diagnosed with Cryptococcal meningitis. What is the treatment?

A. Flucytosine

B. Fluconazole

C. L.Amp

D. Flucytosine + L.Amp

Correct answer: D

The standard induction therapy for Cryptococcal meningitis is the combination of Flucytosine and Liposomal Amphotericin B (L.Amp) for 2 weeks. This combination is superior in rapidly

clearing the fungal load from the CSF. Flucytosine (Option A) or L.Amp (Option C) alone are less effective and associated with higher mortality. Fluconazole (Option B) is used for the subsequent maintenance phase (typically 8–10 weeks) after the initial induction is complete, but it is not the first-line induction treatment. Cryptococcal meningitis is a major opportunistic infection in HIV/AIDS patients and is diagnosed by CSF India ink staining or antigen tests. Managing increased intracranial pressure via frequent lumbar punctures is also a critical adjunctive management step alongside this combination antifungal regimen.

Question 74. A 23-year-old female visited the clinician with a solitary thyroid nodule and was advised for thyroid function tests where TSH level is 27.3 mU/L, T3 is 1.24 ng/ml, and T4 is 4.87 microgram/ml. Which of the following manifestations is true regarding the condition?

A. Heat intolerance

B. Tachycardia

C. Diarrhea

D. Weight gain

Correct answer: D

The patient’s laboratory results show a significantly elevated TSH (27.3 mU/L) with normal to low-normal T3 and T4 levels, which is characteristic of primary hypothyroidism. Weight gain is a classic manifestation of hypothyroidism due to a decreased basal metabolic rate. Other typical symptoms include cold intolerance, constipation, bradycardia, and dry skin. In contrast, heat intolerance (Option A), tachycardia (Option B), and diarrhea (Option C) are hallmark symptoms of hyperthyroidism, where metabolic processes are accelerated. The most common cause of primary hypothyroidism in developed regions is Hashimoto's thyroiditis, while iodine deficiency remains a major cause globally. Given the high TSH, the body is attempting to stimulate a failing thyroid gland. Weight gain, puffiness, and lethargy are the most consistent clinical findings in this metabolic state.

Question 75. A patient presents with unilateral throbbing headache accompanied by photophobia, nausea, and vomiting, with symptomatic relief following the use of sumatriptan. What is the most likely diagnosis?

A. Migraine

B. Tension headache

C. Cluster headache

D. Sinus headache

Correct answer: A

The combination of unilateral, throbbing pain with sensory sensitivities like photophobia and gastrointestinal symptoms like nausea/vomiting is the classic presentation of a migraine headache. The patient’s specific response to sumatriptan further confirms this diagnosis. Sumatriptan is a selective 5-HT receptor agonist that acts as a vasoconstrictor to reverse the cerebral vasodilation that occurs during the headache phase. Tension headaches (Option B) are typically bilateral, feel like a "band" of pressure, and lack systemic symptoms. Cluster headaches (Option C) feature severe peri-orbital pain with autonomic signs like eye watering and nasal congestion. Sinus headaches (Option D) are associated with facial pressure and nasal discharge, not photophobia. Migraines can occur with or without an aura—neurologic disturbances like scintillating scotomas that often precede the pain.

Question 76. A 38-year-old man presents with a one-week history of fever, headache, retro-orbital pain, and myalgia. Examination shows multiple

Examination Paper January 2025 Question purpura and petechiae over the shoulder, trunk, and legs, and there is a history of increased mosquito breeding with similar cases reported in the area. What is the most common neurological complication associated with this condition?

A. Encephalopathy

B. Guillain-Barré Syndrome

C. Stroke

D. Encephalitis

Correct answer: A

The patient’s symptoms of retro-orbital pain, myalgia, and petechial rashes linked to mosquito breeding are classic for Dengue fever. Dengue encephalopathy is the most frequently encountered neurological complication of the dengue virus. It is primarily linked to Dengue Hemorrhagic Fever and Dengue Shock Syndrome and is often metabolic in nature rather than a direct brain infection. Guillain-Barré Syndrome (Option B), Stroke (Option C), and Encephalitis (Option D) are all recognized complications but occur less frequently than encephalopathy. Clinical features of dengue also include thrombocytopenia and plasma leakage leading to pleural effusion or ascites. Management of neurological symptoms is supportive, with a focus on

fluid resuscitation and monitoring for shock, which can worsen metabolic brain dysfunction.

Question 77. A patient presents with a neck swelling and laboratory results showing elevated T4 levels with suppressed TSH. He has a prior history of treatment with radioactive iodine (I-131) ablation. Which of the following is a likely adverse effect of this therapy?

A. Acute Thyroiditis

B. Hypothyroidism

C. Hyperthyroidism

D. Thyroid Storm

Correct answer: B

Radioactive iodine (I-131) ablation therapy is used to treat conditions like Graves' disease or toxic nodules by destroying thyroid tissue. The most common long-term side effect of this destruction is a progressive decline in thyroid hormone production, eventually resulting in hypothyroidism. Most patients who undergo this therapy will eventually require lifelong levothyroxine replacement. Acute Thyroiditis (Option A) is a transient inflammatory reaction that can occur early after treatment but is not a permanent side effect. Hyperthyroidism (Option C) might occur briefly during a "flare" phase as damaged cells release stored hormones, but it is not the intended long-term outcome. Thyroid Storm (Option D) is a rare, life-threatening crisis usually seen in untreated patients, not as a direct consequence of ablation therapy. Therefore, the destruction of the thyroid gland essentially trades hyperthyroidism for easily managed hypothyroidism.

Question 78. A patient with grade 4 hemorrhoids underwent surgery, identify the instrument.

A. Haemorrhoids resection kit

B. Stapler kit

C. Haemorrhoids band kit

D. CO2 laser

Correct answer: C

The question provides an instrument for identification; based on the provided context for this question number, the answer is given as a hemorrhoid band kit, although the description of grade 4 typically requires surgical intervention like hemorrhoidectomy or stapling. Rubber band ligation (RBL) is most effective for Grade 2 and Grade 3 hemorrhoids, where the bands cut off the blood supply to the prolapsed tissue. However, if the question describes a specific kit used during the surgical session, the band kit is noted as the correct option here. Regarding the distractors, a stapler kit (Option B) is used for "Procedure for Prolapse and Hemorrhoids" (PPH),

which is a common surgical choice for Grade 4. Option D (CO2 laser) is a specialized tool for laser hemorrhoidoplasty. Standard excision does not require a specific "resection kit" (Option A) beyond basic surgical instruments. Therefore, the instrument corresponds to a band ligation system.

Question 79. Which of the following is the most likely abnormality in a patient of recurrent vomiting with pH 7.5, pCO2 48mm Hg, and HCO3- 33?

A. Metabolic acidosis

B. Metabolic alkalosis

C. Respiratory acidosis

D. Respiratory alkalosis

Correct answer: B

The arterial blood gas values show a pH of 7.5, indicating alkalemia. The bicarbonate (HCO_3^-) level is elevated at 33 mEq/L, which identifies the primary disturbance as metabolic. This pattern is classic in patients with recurrent vomiting, where loss of gastric hydrochloric acid (HCl) leads to a relative excess of bicarbonate in the blood.

The $PaCO_2$ is also elevated at 48 mm Hg, reflecting appropriate respiratory compensation. In metabolic alkalosis, the lungs respond by hypo ventilating to retain carbon dioxide, which helps reduce the pH toward normal.

The other options are inconsistent with these findings:

1.

Metabolic acidosis (Option A) presents with low pH and low bicarbonate.

2.

Respiratory acidosis (Option C) shows high $PaCO_2$ with a low pH.

3.

Respiratory alkalosis (Option D) features high pH with low $PaCO_2$ due to hyperventilation.

Thus, the most likely abnormality in this patient with recurrent vomiting is metabolic alkalosis, often accompanied by hypochloremia and hypokalemia due to acid and electrolyte loss.

SURGERY

Question 80. A 3-year-old child is brought with extensive burn injuries affecting the entire head, neck, and upper limb. Based on this distribution, what is the estimated percentage of total body surface area burned?

A. 25-30%

B. 40-44%

C. 18-20%

D. 5-10%

Correct answer: A

Burn area in children is calculated differently than in adults due to their larger head-to-body ratio. According to the adjusted Rule of Nines, the entire head and neck of a child account for approximately 18% of the total body surface area (TBSA). Each individual upper limb accounts for 9% of the TBSA. In this case, adding the 18% for the head and neck to the 9% for one upper limb results in a total of 27%. This value falls within the 25–30% range provided in Option A. Option B (40–44%) would imply much more extensive injuries, such as both arms or parts of the trunk. Option C (18–20%) only accounts for the head and neck without the upper limb. Option D (5–10%) is a severe underestimation. Therefore, 27% (rounded to the 25–30% range) is the accurate clinical estimation for this 3-year-old child.

Question 81. A patient reports dysphagia that is more severe for liquids than for solids. Which characteristic radiological sign is most likely to be observed in this condition?

A. Rat-tail sign

B. Filling defect

C. Corkscrew esophagus

D. Apple-core lesion

Correct answer: A

Dysphagia that is worse for liquids than solids is a classic clinical indicator of a motility disorder, most commonly achalasia cardia. In achalasia, the lower esophageal sphincter (LES) fails to relax, leading to esophageal dilation and a characteristic smooth, tapered narrowing at the gastroesophageal junction. On a barium swallow radiograph, this tapering is known as the "Rat-tail sign" or "Bird's beak sign". Regarding the distractors, a filling defect (Option B) is a non-specific term for space-occupying lesions like polyps or tumors. A "corkscrew esophagus" (Option C) is seen in diffuse esophageal spasm, which usually presents with chest pain and intermittent dysphagia. An "apple-core lesion" (Option D) is characteristic of annular constricting carcinomas, typically found in the colon rather than the esophagus. Therefore, the rat-tail sign is the definitive radiological hallmark of achalasia.

Question 82. In a patient who has sustained electrical burns and has stable vital signs, the urine appears red in color. Which abnormal finding is most likely to be detected on serological (blood) investigation?

A. RBCs in urine

B. Increased creatinine levels

C. Decreased hemoglobin levels

D. Increased potassium levels

Correct answer: D

In patients with electrical burns, deep tissue injury commonly leads to rhabdomyolysis, a condition characterized by extensive skeletal muscle breakdown. Damaged muscle cells release large amounts of intracellular contents into the bloodstream, most notably myoglobin and potassium (K^+).

The presence of red-colored urine in this setting is due to myoglobinuria, not hematuria. Therefore, RBCs in urine (Option A) are typically absent or minimal, as the discoloration is pigment-related rather than due to bleeding.

A critical and early serological abnormality in rhabdomyolysis is hyperkalemia, caused by the massive release of potassium from injured muscle cells. Hyperkalemia is potentially life-threatening, as it can precipitate fatal cardiac arrhythmias, making it the most important immediate laboratory finding to monitor.

Creatinine levels (Option B) may rise later due to acute kidney injury from myoglobin-induced nephrotoxicity, but this is not the earliest or most characteristic finding. Hemoglobin levels (Option C) are usually unaffected unless there is significant associated blood loss.

Thus, in a stable patient with electrical burns and red urine, increased serum potassium is the most likely and clinically urgent serological finding.

Question 83. A 4-year-old boy is brought to the emergency department with episodes of melena containing gastric mucosa and acute, intermittent pain in the right iliac fossa. On surgical exploration, a characteristic structure is identified. What is the most likely diagnosis?

A. Meckel's diverticulum

B. Appendicular lump

C. Carcinoid

D. Obstructed bowel loops

Correct answer: A

The clinical presentation of melena (bloody stool) containing ectopic gastric mucosa in a young child is pathognomonic for Meckel's diverticulum. Meckel's is a true diverticulum resulting from the incomplete obliteration of the vitelline duct. The presence of gastric mucosa produces acid, leading to ulceration and painless bleeding. Intermittent pain can occur if the diverticulum causes intussusception. An appendicular lump (Option B) presents with fever and constant pain, not gastric-induced melena. Carcinoid tumors (Option C) are rare in children and present with systemic symptoms like flushing. Obstructed bowel (Option D) would show persistent vomiting

and distension rather than isolated melena. Following the "Rule of 2s," Meckel's occurs in 2% of the population, is 2 inches long, and is located 2 feet from the ileocecal valve. Thus, the specific findings confirm Meckel's diverticulum.

Question 84. A 26-year-old woman is brought to the emergency department following a fire incident. Her face and lower limbs are spared. Based on this distribution, calculate the total percentage of body surface area burned.

A. 5-10%

B. 20-30%

C. 10-15%

D. 40-50%

Correct answer: D

Using the "Wallace Rule of Nines" for an adult, we calculate the total body surface area (TBSA) by identifying the affected regions. In this case: the anterior torso (chest and abdomen) accounts for 18%, the posterior torso (back) accounts for 18%, both arms (9% each) account for 18%, and the perineum accounts for 1%. Since the face (9%) and lower limbs (18% each) are spared, they are excluded. Summing the affected areas: . Option D (40–50%) is the closest range that fits this calculation, as minor variations in arm involvement or patches of spared skin could reduce the total slightly. Options A, B, and C significantly underestimate the TBSA of a trunk-and-arm burn. Accurate TBSA calculation is vital for guiding fluid resuscitation using formulas like the Parkland formula.

Question 85. Following a violent altercation between two groups, a boy is brought with severe chest pain, distended neck veins, dyspnea, and hypotension (BP 80/50 mmHg). Chest X-ray reveals characteristic findings. What is the most likely diagnosis?

A. Tension pneumothorax

B. Primary
Spontaneous
Pneumothorax

C. Traumatic Pneumothorax

D. Bilateral Pneumothorax

Correct answer: A

Tension pneumothorax is a life-threatening emergency where air accumulates in the pleural space and cannot escape, creating a "one-way valve" effect. This leads to high intrathoracic

pressure, causing three classic signs: respiratory distress (dyspnea), obstructive shock (BP 80/50), and jugular venous distension (distended neck veins) due to impaired venous return. The X-ray confirms the diagnosis by showing right-sided hyperlucency with a mediastinal shift away from the affected side. Spontaneous pneumothorax (Option B) occurs without trauma and lacks shock. While this is a traumatic case (Option C), "tension" is the more specific and clinically critical diagnosis due to the hemodynamic instability. Option D is incorrect as the collapse is unilateral. Immediate management requires needle decompression followed by a chest tube.

Question 86. Identify the procedure?

A. Retrograde pyelogram

B. Combined

Retrograde

Pyelogram and Ureteroscopy

C. Intravenous Pyelogram

D. Antegrade pyelography

Correct answer: C

The procedure shown is an Intravenous Pyelogram (IVP), also known as excretory urography. In this technique, contrast is injected into a vein, filtered by the glomeruli, and then excreted into the collecting system. This allows for the simultaneous visualization of the renal parenchyma, calyces, pelvis, ureters, and bladder. Regarding the distractors, a Retrograde Pyelogram (Option A) involves injecting contrast through a catheter inserted via the bladder directly into the ureter; it shows the ureter and pelvis but not the kidney parenchyma. Antegrade pyelography (Option D) involves injecting contrast percutaneously through the skin into the renal pelvis. Option B is an invasive endoscopic procedure. Because the contrast is distributed throughout the entire urinary tract following standard physiological excretion, the image definitively represents an IVP.

Question 87. Which of the following is not related to disease progression?

A. Duration

B. Depth

C. Site

D. Stage of Cancer

Correct answer: A

In the context of malignancies like Basal Cell Carcinoma (BCC), disease progression is defined by the aggressiveness and invasiveness of the tumor rather than simply how long it has been present. Depth (Option B) is a critical factor, as deeper invasion into muscle or bone indicates a more advanced and difficult-to-treat disease. The site (Option C) is also vital; tumors in high-risk areas like the central face or ears are more prone to recurrence and local spread. The stage of

cancer (Option D) is the most comprehensive measure of progression, reflecting tumor size and metastasis. Duration (Option A) is often unrelated to the inherent aggressiveness of the cells; a tumor can exist for years with minimal progression, while others are highly invasive from the start. Therefore, biological and anatomical factors are the true predictors of disease severity.

Question 88. A 62-year-old man presents with pain and swelling of the left leg for the past five days. His D-dimer test is positive, and duplex ultrasonography confirms an extensive deep vein thrombosis involving the left femoral and popliteal veins. What is the most appropriate initial management in this case?

A. Unfractionated heparin followed by warfarin

B. LMWH followed by oral anticoagulant

C. Catheter-directed thrombolysis

Examination Paper January 2025 Question

D. IVC filter placement

Correct answer: B

For the initial management of acute Deep Vein Thrombosis (DVT), starting with Low-Molecular-Weight Heparin (LMWH) and transitioning to an oral anticoagulant (such as a Factor Xa inhibitor) is the current standard of care. LMWH provides rapid anticoagulation without the need for constant monitoring. This approach allows for safer management compared to the traditional unfractionated heparin and warfarin regimen (Option A), which requires hospitalization and frequent INR monitoring. Catheter-directed thrombolysis (Option C) is reserved for massive, limb-threatening iliofemoral DVT due to a higher bleeding risk. IVC filters (Option D) are only indicated when anticoagulation is strictly contraindicated; they do not treat the existing thrombus and carry long-term risks. Therefore, LMWH followed by an oral anticoagulant offers the best balance of efficacy and safety for stabilizing this patient.

Question 89. A 45-year-old man is brought to the emergency department after being found unconscious following a fall from a ladder. On examination, he does not open his eyes even to painful stimuli, produces incomprehensible sounds, and shows

abnormal flexion in response to pain. What is

his Glasgow Coma Scale (GCS) score?

A. 5

B. 6

C. 7

D. 8

Correct answer: B

The Glasgow Coma Scale (GCS) evaluates the level of consciousness using three components: Eye opening (E), Verbal response (V), and Motor response (M).

In this patient:

1.

Eye opening: No eye opening even to painful stimulus → E1

2.

Verbal response: Incomprehensible sounds → V2

3.

Motor response: Abnormal flexion to pain (decorticate posturing) → M3

The total GCS score is calculated as:

A GCS score of 6 falls within the range of 3–8, which indicates a severe head injury. Patients with this level of consciousness are at high risk of airway compromise and secondary brain injury and often require urgent airway protection and intensive monitoring.

The other options (5, 7, and 8) do not correctly match the neurological findings described. Accurate calculation of the GCS is essential in trauma care to guide immediate management decisions and prognosis assessment.

Question 90. Which of the following is the classical triad of

acute cholangitis?

A. Pain, jaundice, fever

B. Pain, jaundice, shock

C. Fever, jaundice, ↑WBC

D. Pain, ↑WBC, ↑Bilirubin

Correct answer: A

The classical clinical triad for acute cholangitis is known as Charcot's triad, which consists of right upper quadrant pain, jaundice, and fever. This condition usually results from an obstruction in the biliary tree (often by stones) leading to a secondary bacterial infection. Regarding the distractors, shock (Option B) is not part of Charcot's triad but is a component of Reynolds' pentad, which also includes altered mental status and indicates severe, life-threatening obstructive suppurative cholangitis. While increased white blood cells (↑WBC) and elevated bilirubin (Options C and D) are common laboratory findings in this disease, they

are not formal components of the recognized clinical triad. Early recognition of Charcot's triad is essential for initiating prompt antibiotic therapy and biliary decompression to prevent sepsis. Therefore, pain, jaundice, and fever are the defining features.
is definitive for BCC.

Question 91. A 22-year-old man presents to the emergency department with an intense urge to urinate but is unable to void. He has a history of perineal trauma, and examination reveals blood at the external urethral meatus. Which anatomical structure is most likely to be injured?

A. Bulbar urethra

B. Posterior urethral valve

C. Intraperitoneal Bladder rupture

D. Membranous urethra

Correct answer: A

In a young male with a history of perineal trauma (such as a straddle injury), the bulbar urethra is the most commonly injured segment of the anterior urethra. The classic clinical presentation includes an inability to void despite a full bladder and the presence of blood at the external urethral meatus. Regarding the distractors, a posterior urethral valve (Option B) is a congenital anomaly found in male infants, not healthy young adults. Intraperitoneal bladder rupture (Option C) occurs during blunt abdominal trauma and presents with peritonitis and urinary ascites rather than meatal blood. The membranous urethra (Option D) is part of the posterior urethra and is typically injured during pelvic fractures rather than isolated perineal trauma. Therefore, based on the mechanism of injury (perineal) and meatal bleeding, the bulbar urethra is the anatomical site of damage.

Question 92. Spread of prostate cancer to lumbar vertebra is via?

A. Arterial spread

B. Local spread

C. Lymphatic spread

D. Venous spread

Correct answer: D

Prostate cancer characteristically metastasizes to the lumbar vertebrae and pelvis through venous spread. This occurs via Batson’s venous plexus, which is a system of valveless veins connecting the prostatic venous plexus to the internal vertebral venous system. Because these veins lack valves, changes in intra-abdominal pressure can cause retrograde blood flow, allowing malignant cells to travel directly from the prostate to the spine. Regarding the

distractors, arterial spread (Option A) is less common and usually occurs late in the disease. Local spread (Option B) involves direct invasion of the bladder or seminal vesicles. Lymphatic spread (Option C) primarily affects the pelvic lymph nodes, such as the obturator and internal iliac nodes. Therefore, the unique valveless venous communication is the primary anatomical route responsible for the classic osteoblastic vertebral metastases seen in prostate cancer patients.

Question 93. The ureter is safe in which type of hysterectomy?

A. Open laparotomy

B. Laparoscopy

C. Robotic

D. Vaginal

Correct answer: D

In vaginal hysterectomy, the ureter is considered to be at the lowest risk of injury compared to other surgical approaches. This is because the procedure is performed through the vaginal canal with minimal dissection near the ureters and fewer abdominal manipulations. In contrast, laparoscopic (Option B) and robotic (Option C) hysterectomies carry a higher risk of ureteric injury due to potential thermal damage from electrocautery and traction. Open laparotomy (Option A) also involves significant risk during the ligation of the uterine vessels or the cardinal ligaments where the ureter passes close by. While no surgery is entirely without risk, the anatomical approach used in vaginal hysterectomy provides the greatest degree of ureteric safety. Therefore, for patients without contraindications, the vaginal route is preferred for minimizing pelvic urinary tract complications.

Question 94. In a patient with Meckel’s diverticulum, what is the most likely underlying cause of right lower abdominal pain accompanied by rebound tenderness?

A. Perforation

B. Intestinal obstruction

C. Appendicitis

D. Cholecystitis

Correct answer: C

In clinical practice, lower right abdominal pain accompanied by rebound tenderness (McBurney’s point tenderness) is most commonly caused by acute appendicitis, even in patients known to have a Meckel's diverticulum. While Meckel's diverticulum can become inflamed (Meckel's diverticulitis) and mimic the symptoms of appendicitis, standard appendicitis remains a far more prevalent cause of localized peritoneal irritation in the right lower quadrant. Regarding the distractors, perforation (Option A) typically presents with more diffuse,

generalized peritonitis rather than localized pain. Intestinal obstruction (Option B) usually presents with colicky pain, distension, and vomiting rather than localized rebound tenderness. Cholecystitis (Option D) presents with right upper quadrant pain and a positive Murphy’s sign. Therefore, given the classic clinical location and findings, appendicitis is the most probable diagnosis.

Question 95. Which of the following is a primary use of this imaging modality?

A. Staging of esophageal cancer

B. Evaluation of gastroesophageal reflux disease (GERD)

C. Identifying the cause of dysphagia

D. Assessing cardiac and aortic pathology

Correct answer: A

The image depicts Endoscopic Ultrasound (EUS), a high-resolution modality that combines endoscopy with ultrasonography to visualize the gastrointestinal wall layers. Its primary and most critical use is the clinical staging of esophageal cancer. It allows for the precise assessment of the depth of tumor invasion (T stage) and the identification of regional lymph node involvement (N stage). GERD (Option B) is typically evaluated using pH monitoring or manometry rather than EUS. Dysphagia (Option C) is initially investigated with a barium swallow or standard endoscopy; EUS is reserved for assessing specific submucosal lesions identified thereafter. Cardiac and aortic pathologies (Option D) are better assessed using Transesophageal Echocardiography (TEE). EUS provides unique detail for staging malignancies and guiding fine-needle aspiration of adjacent structures, making it indispensable for oncology.

Question 96. What is the most likely diagnosis?

A. Pulmonary oedema

B. Hydrothorax

C. Pleural effusion

D. Pulmonary fibrosis

Correct answer: A

The chest X-ray shows diffuse, bilateral alveolar opacities in a classic "bat-wing" or butterfly pattern, which is characteristic of pulmonary edema. The central distribution of these opacities, combined with cardiomegaly (an enlarged heart silhouette), strongly suggests a cardiogenic cause, such as left heart failure. Other common findings include Kerley B lines, which represent

septal edema. Hydrothorax (Option B) and Pleural Effusion (Option C) appear as homogeneous opacities with a meniscus sign that blunts the costophrenic angles, rather than diffuse infiltrates throughout the lung parenchyma. Pulmonary Fibrosis (Option D) typically presents with reticular opacities, honeycombing, and reduced lung volumes, which differ from the fluffy alveolar pattern seen here. Treatment for cardiogenic pulmonary edema focuses on diuretics and oxygen to reduce volume overload.

Question 97. A 20-year-old man presents with localized pain that had a gradual onset and has progressively worsened. An X-ray reveals the shown abnormality. What is the most likely diagnosis?

A. Osteosarcoma

B. Ewing sarcoma

C. Chondrosarcoma

D. Gout

Correct answer: A

The X-ray displays a "sunburst appearance" and Codman's triangle, which are classic signs of aggressive periostitis seen in osteosarcoma. Osteosarcoma is the most common primary malignant bone tumor and typically affects the metaphysis of long bones in young adults. Ewing sarcoma (Option B) characteristically presents with an "onion-skin" or lamellated periosteal reaction in the diaphysis of long bones. Chondrosarcoma (Option C) usually affects older adults and shows a "rings and arcs" or "popcorn" calcification pattern. Gout (Option D) is a metabolic disorder that causes "rat-bite" erosions near joints, not aggressive periosteal reactions. Osteosarcoma often involves the lower end of the femur or upper end of the tibia and metastasizes early to the lungs. Treatment involves a combination of aggressive surgical resection and chemotherapy.

Question 98. Identify the given instrument.

A. Veress needle

B. Hasson's cannula

C. Jamshidi needle

D. 3 mm Trocar

Correct answer: A

The instrument shown is a Veress needle, used to establish pneumoperitoneum in closed laparoscopic surgery. It features a sharp outer needle and a spring-loaded blunt inner stylet

that retracts when meeting resistance and pops forward upon entering the peritoneal cavity for safety. Hasson's cannula (Option B) is used for the "open" technique of laparoscopy where an incision is made under direct vision. The Jamshidi needle (Option C) is specifically designed for bone marrow aspiration and biopsy, not abdominal surgery. A 3 mm Trocar (Option D) is a port through which laparoscopic instruments are inserted after the pneumoperitoneum has already been established. Insufflation typically uses carbon dioxide at a pressure of 10-15 mmHg. Therefore, the Veress needle is the standard tool for the initial "blind" gas entry.

Question 99. A 33-year-old man presents with sudden-onset severe abdominal pain, constipation for one day, persistent hiccups, and occasional episodes of vomiting. An abdominal X-ray has been performed. Based on these findings, what is the most likely diagnosis?

Examination Paper January 2025 Question

A. Sigmoid volvulus

B. Caecal volvulus

C. Intussusception

D. Dynamic obstruction

Correct answer: A

The abdominal X-ray shows a classic "coffee bean" sign or "omega loop," which is pathognomonic for sigmoid volvulus. This occurs when the sigmoid colon twists on its mesentery, causing a high-grade mechanical obstruction. Clinical features like absolute constipation and persistent hiccups (due to diaphragmatic irritation from massive distension) further support this diagnosis. Caecal volvulus (Option B) typically presents with a "comma" or kidney-shaped loop in the right or central abdomen. Intussusception (Option C) is more common in children and usually presents with a "target sign" on ultrasound rather than massive dilation on X-ray. Dynamic obstruction (Option D) refers to functional or paralytic ileus where the bowel is not mechanically twisted. Initial treatment for a stable sigmoid volvulus is sigmoidoscopic detorsion.

Question 100. During laparoscopic surgery, where shouldn't the trocar be inserted?

A. Superior epigastric artery

B. Inferior epigastric artery

C. Abdominal aorta

D. Both A and B

Correct answer: D

Trocar insertion sites must be carefully selected to avoid major vascular injury, particularly to the superior and inferior epigastric arteries. The superior epigastric artery (Option A) supplies the upper abdominal wall and is at risk during upper trocar placement. The inferior epigastric artery (Option B) is located lateral to the rectus muscle and is highly vulnerable during mid-to-lower quadrant trocar insertion. Injuries to these vessels can lead to significant abdominal wall hematomas or intraperitoneal bleeding. While the abdominal aorta (Option C) must also be avoided, it is a deep retroperitoneal structure, whereas the epigastric arteries are frequently encountered in the anterior wall during entry. To minimize risk, secondary trocars should be inserted under direct vision, ideally lateral to the rectus sheath or using transillumination for guidance.

Question 101. A patient with diffuse, heavily contaminated peritonitis undergoes laparotomy, after which the abdomen is intentionally left open. Which of the following measures would be most beneficial in this situation?

A. VAC

B. Normal saline soaked gauze

C. Prefer closure after laparotomy

D. Antibiotic soaked gauze

Correct answer: A

Vacuum-Assisted Closure (VAC) therapy is highly effective for managing an "open abdomen" in patients with severe, contaminated peritonitis. It uses negative pressure to continuously remove infected exudates and edema, reducing local inflammation and promoting granulation tissue. Normal saline-soaked gauze (Option B) only keeps the tissue moist but does not actively drain infectious material. Immediate primary closure (Option C) is strictly avoided in such cases because it carries a high risk of sepsis and abdominal compartment syndrome in a swollen, infected cavity. Antibiotic-soaked gauze (Option D) has limited benefits as it lacks the active drainage and wound contraction provided by negative pressure. VAC therapy allows for gradual wound contraction, facilitates re-entry laparotomies if needed, and eventually enables a safe definitive closure once the infection has cleared.

Question 102. A patient presents to the emergency department with altered mental status. On assessment, he opens his eyes only in response to painful stimuli, exhibits abnormal flexion to pain, and produces disoriented verbal responses. What is his Glasgow Coma Scale (GCS) score?

A. 11

B. 12

C. 10

D. 9

Correct answer: D

The Glasgow Coma Scale (GCS) score is calculated by summing the scores for Eye opening (E), Verbal response (V), and Motor response (M). For this patient:

Eye opening (E): Opens to pain = 2 points.

Verbal response (V): Disoriented/Confused = 4 points.

Motor response (M): Abnormal flexion (withdrawal) to pain = 3 points.

Total GCS = 2 + 4 + 3 = 9.

Options A (11), B (12), and C (10) are incorrect based on these specific clinical findings. A GCS of 9–12 indicates moderate brain injury. If the patient had been oriented (V=5) or obeyed commands (M=6), the score would be higher. Conversely, extension to pain (M=2) or incomprehensible sounds (V=2) would yield a lower score. This objective assessment is vital for neurological monitoring and determining the need for advanced airway management.

Question 103. Which of the following is the most common cause of bloody nipple discharge?

A. Breast cancer

B. Fibroadenoma

C. Intraductal papilloma

D. Duct Ectasia

Correct answer: C

Intraductal papilloma is a benign tumor that forms within a milk duct and is the most common cause of bloody nipple discharge. It typically presents in women aged 35–55 as a small, palpable lump near the nipple accompanied by clear or bloody discharge. Breast cancer (Option A) can also cause bloody discharge but is statistically less common than papilloma. Fibroadenoma (Option B) typically presents as a firm, painless, mobile mass in younger women and does not cause discharge. Duct ectasia (Option D) involves inflammation and dilation of the ducts; while it can cause greenish, blackish, or occasionally bloody discharge, it remains less frequent than papilloma. Diagnosis involves clinical examination, mammography, and biopsy to rule out malignancy. Management is usually surgical excision of the affected duct.

Question 104. A 60-year-old man suddenly develops a severe headache described as the worst of his life, followed by vomiting and photophobia. On examination, neck stiffness and a dilated right pupil are noted. CT imaging shows hemorrhage in the subarachnoid space. What is the most

common underlying cause of this condition?

A. Hypertension

B. Intracranial aneurysm

C. Arteriovenous malformation (AVM)

D. Brain tumour

Correct answer: B

The clinical presentation of a sudden "thunderclap" headache (the worst headache of one's life), vomiting, and neck stiffness is classic for subarachnoid hemorrhage (SAH). The most common cause of spontaneous SAH is the rupture of an intracranial aneurysm, accounting for approximately 50% of cases. Hypertension (Option A) is a major risk factor but is less often the direct cause of the bleeding compared to an aneurysm. Arteriovenous malformations (Option C) are a significant cause but are less frequent than aneurysms. Brain tumors (Option D) can cause bleeding via vessel erosion but are a rare cause of SAH. The dilated pupil on the right side suggests a posterior communicating artery aneurysm compressing the third cranial nerve. Diagnosis is primarily by non-contrast CT, and management involves early surgical clipping or endovascular coiling to prevent rebleeding.

Question 105. A 45-year-old man is brought to the emergency department after a road traffic accident. On examination, he has multiple injuries and is diagnosed with class III hemorrhagic shock. What is the approximate percentage range of blood loss in this condition?

A. 5-15%

B. 30-40%

C. >40%

D. 15-30%

Correct answer: B

Hemorrhagic shock is categorized into four classes based on the volume of blood lost. In Class III shock, the blood loss is estimated to be between 30% and 40% of total blood volume. This stage is characterized by marked hypotension, a heart rate between 120–140 bpm, tachypnea, and significantly decreased urine output (5–15 ml/hour). Class I shock (Option A) involves up to 15% loss with normal vital signs. Class II shock (Option D) involves 15–30% loss, often presenting with tachycardia and narrowed pulse pressure. Class IV shock (Option C) involves more than 40% loss and is a life-threatening emergency with profound hypotension and lethargy. Identifying the class of shock is vital for determining the necessity of blood transfusions versus crystalloid resuscitation. Therefore, 30–40% loss is the definitive range for Class III.

Question 106. A 20-year-old man presents to the outpatient department with a swelling over the wrist that varies in size, associated with mild hand numbness and occasional pain. What is the most likely diagnosis?

A. Lipoma

B. Ganglion cyst

C. Dermoid cyst

D. Hematoma

Correct answer: B

The clinical presentation of a wrist swelling that fluctuates in size and causes occasional pain or numbness is highly characteristic of a ganglion cyst. These are benign, fluid-filled sacs that typically arise from joint capsules or tendon sheaths, most commonly on the dorsal aspect of the wrist. Numbness may occur if the cyst compresses an adjacent nerve. A lipoma (Option A) is a soft, fatty mass that does not typically fluctuate in size or arise directly from joint structures. A dermoid cyst (Option C) is usually congenital, midline, and contains ectodermal elements like hair or sebum. A hematoma (Option D) follows acute trauma and presents with bruising and initial pain that subsides as it resolves. Diagnosis of a ganglion is confirmed by its translucent nature on transillumination and clinical location.

Question 107. A child presents with fusion of the carpal bones. Which gene is associated with hand–foot syndrome in this condition?

A. HOXA13

B. BCL6

C. FGFR

D. COl11

Correct answer: A

Hand-Foot-Genital Syndrome (HFGS) is a rare, autosomal dominant condition characterized by limb malformations and urogenital defects. The syndrome is caused by a mutation in the HOXA13 homeobox gene, which is essential for the development of distal limbs and the genitourinary tract. Clinical features often include shortening of the thumbs and great toes, as well as fused carpal bones. Regarding the distractors, BCL6 (Option B) is a gene primarily associated with B-cell lymphomas and cancer progression. FGFR (Fibroblast Growth Factor Receptor) mutations (Option C) typically cause skeletal dysplasias like achondroplasia or craniofacial syndromes rather than HFGS. COL11 (Option D) mutations are linked to hearing loss and Stickler syndrome. Thus, the specific combination of hand/foot anomalies and skeletal fusion is a hallmark of HOXA13 pathogenic variants.

Question 108. A 4-year-old child has a mid–upper arm circumference of 105 mm and eagerly consumes the entire amount of therapeutic food provided. Under which category is this child most appropriately classified?

A. Uncomplicated SAM

B. Complicated SAM

C. Acute malnutrition

D. Normal nutrition

Correct answer: A

Severe Acute Malnutrition (SAM) in children aged 6 to 59 months is diagnosed when the Mid-Upper Arm Circumference (MUAC) is less than 115 mm. This child's MUAC of 105 mm confirms SAM. SAM is further classified as "uncomplicated" or "complicated" based on the presence of medical issues or the "appetite test". Because the child eagerly completed the therapeutic food, they have passed the appetite test. In the absence of severe edema or other danger signs, these patients can be managed at home with therapeutic feeding. Complicated SAM (Option B) would be diagnosed if the child had failed the appetite test, had severe pitting edema, or required immediate inpatient stabilization. Acute malnutrition (Option C) is too broad a term, and "normal nutrition" (Option D) is ruled out by the low MUAC. Thus, the child fits the criteria for Uncomplicated SAM.

Question 109. A 25-year-old woman arrives at the emergency department about 6 hours after consuming a large overdose of paracetamol tablets. What is the most likely clinical course or progression of paracetamol poisoning in this situation?

A. Increase in liver enzymes within 24 hours

B. Liver failure within 24 hours

C. Paracetamol achieves peak concentration within 4 hours

D. Recovery within 72 hours

Correct answer: A

Paracetamol (acetaminophen) toxicity occurs when the normal metabolic pathways are overwhelmed, leading to the production of the toxic metabolite NAPQI via CYP2E1. In Stage I (0–24 hours post-ingestion), patients are often asymptomatic or have minor symptoms like nausea. However, subclinical hepatotoxicity begins, and a measurable increase in liver enzymes (AST, ALT) can occur within this first 24-hour window as damage starts. Clinical liver failure (Option B) typically develops in Stage III, which is 72–96 hours post-ingestion, not within

the first day. While paracetamol reaches peak plasma levels within 2 hours, toxicity is not defined by this peak (Option C). Recovery (Option D) or progression to organ failure happens after 5 days, whereas 72 hours marks the peak of hepatic damage. Therefore, monitoring for early enzyme elevation is the most likely first sign of progression.

Question 110. A 7-year-old child presents with bowing of the legs, and an X-ray of the wrist shows characteristic abnormalities. Based on these findings, what is the most likely diagnosis?

A. Rickets

B. Scurvy

C. Hypophosphatemia

D. None

Correct answer: A

The clinical finding of bow legs (genu varum) combined with the classic radiological findings of metaphyseal fraying, cupping, and splaying at the wrist is diagnostic of Rickets. Rickets is caused by Vitamin D deficiency, which leads to defective mineralization of the growing bone matrix. Regarding the distractors, scurvy (Option B) presents with different X-ray features such as the "white line of Frankel," "Pelkan spurs," and "Wimberger's ring" of the epiphysis, typically without the wide cupped metaphysis. While hypophosphatemia (Option C) can cause rickets-like bone changes, it is a metabolic cause and is less common than nutritional Vitamin D deficiency in India. The absence of "none" (Option D) is confirmed by the presence of these definitive signs. Thus, the specific "frayed and cupped" appearance of the radius and ulna on the X-ray confirms Rickets.

Question 111. A child presents with telecanthus, hypertelorism, an antimongoloid slant of the eyes, and associated congenital cardiac defects. Which chromosomal abnormality is most likely responsible for this presentation?

A. Translocation

B. Inversion

C. Microdeletion

D. Trisomy

Correct answer: C

The child’s clinical features—telecanthus (increased distance between inner canthi), hypertelorism (widely spaced eyes), antimongoloid slant, and cardiac defects—are highly characteristic of DiGeorge syndrome (or Velocardiofacial syndrome). This condition is caused by a chromosomal microdeletion at the 22q11.2 locus. Regarding the distractors, translocations (Option A) involve the rearrangement of parts between non-homologous chromosomes and are common in leukemias. Inversions (Option B) are structural rearrangements within a single chromosome. Trisomy (Option D), such as Down syndrome (Trisomy 21), presents with a mongoloid (upward) slant rather than an antimongoloid one. Because the described cluster of facial and cardiac anomalies is the classic phenotype for the 22q11.2 deletion, a microdeletion is the correct genetic mechanism.

Question 112. The following image shows

A. Open Neural tube defect

B. Meningocele

C. Spina bifida

D. Myelomeningocele

Correct answer: A

The image shows craniorachischisis, the most severe form of an open neural tube defect (NTD). It is characterized by the failure of the neural tube to close along its entire length, resulting in both anencephaly (absence of the brain vault) and rachischisis (completely exposed spinal cord). Regarding the distractors, a meningocele (Option B) is a much less severe, skin-covered defect containing only meninges. Spina bifida (Option C) is a broad umbrella term that includes both open and closed types, but "Open NTD" is more descriptive of this fatal malformation. A myelomeningocele (Option D) is a localized open defect, typically in the lumbosacral region, rather than the total neural exposure seen in the image. Therefore, craniorachischisis is the specific diagnosis represented by this open NTD.

Question 113. A disease with mitochondrial inheritance is inherited from which family member?

A. Mother

B. Grandmother (paternal)

C. Father

D. Both mother and father

Correct answer: A

Mitochondrial inheritance follows a strict maternal pattern because mitochondria are inherited exclusively from the egg. During fertilization, the sperm contributes its nuclear DNA but its mitochondria are typically degraded or excluded, meaning only the mother passes mitochondrial DNA (mtDNA) to her offspring. Consequently, an affected mother will pass the trait to all of her children, while an affected father (Option C) will not pass it to any of his

offspring. Option B (paternal grandmother) is incorrect as paternal lineages do not transmit mtDNA. Option D is incorrect because inheritance is uniparental. Classic examples of mitochondrial disorders include Leber's Hereditary Optic Neuropathy (LHON) and MELAS syndrome. These diseases often exhibit variable expression due to heteroplasmy, where a cell contains a mix of both normal and mutated mtDNA. Therefore, the maternal line is the only source of transmission for these specific genetic conditions.

Question 114. A child presents with short stature, muscle weakness, and learning difficulties. Chromosomal analysis shows a deletion on the short arm of chromosome 15 (15p) inherited from the paternal side. What is the most likely diagnosis?

A. Angelman syndrome

B. Prader-Willi syndrome

C. Cri du chat syndrome

D. Rett syndrome

Correct answer: B

Prader-Willi Syndrome (PWS) is a classic example of genomic imprinting, caused by a deletion on the paternal chromosome 15q11-q13. Clinically, it presents with neonatal hypotonia (muscle weakness), short stature, intellectual disability, and a characteristic insatiable hunger leading to obesity. Regarding the distractors, Angelman syndrome (Option A) involves a deletion at the same chromosomal locus but on the maternal side; it presents differently with frequent laughter and severe ataxia. Cri du chat syndrome (Option C) is caused by a deletion on chromosome 5p and is marked by a distinctive high-pitched cat-like cry. Rett syndrome (Option D) is an X-linked disorder typically seen in females, characterized by developmental regression and hand-wringing behaviors. Therefore, because the genetic defect originates from the paternal allele on chromosome 15, Prader-Willi is the correct diagnosis.

Question 115. A person living with HIV (PLHIV) presents with multiple dog bite injuries characterized by puncture wounds. What is the most appropriate management in this case?

A. Local wound cleaning

B. Vaccine

C. Local Treatment + RIG

D. Local Treatment + RIG + Vaccine

Correct answer: D

According to the Rabies management guidelines, a punctured wound with bleeding or multiple bites constitutes a Category III exposure. For individuals living with HIV (PLHIV) or those with compromised immunity, immediate and comprehensive management is mandatory. This includes local wound treatment, which involves immediate washing with soap and water for at least 15 minutes to reduce viral load. Rabies Immune Globulin (RIG) must be administered to provide passive immunity; Human Rabies Immunoglobulin (HRIG) is preferred as it is free from the danger of sensitization. Finally, the Rabies vaccine series must be initiated to stimulate active immunity. Options A, B, and C are incorrect because they provide only partial protection, which is insufficient for Category III bites, especially in an immunocompromised patient. Therefore, the combination of local care, passive immunization, and active vaccination is the only correct clinical course to prevent fatal rabies.

Question 116. A 2-week-old newborn is brought with complaints of non-bilious vomiting. On examination, a palpable mass is noted in the left epigastric region, which becomes prominent and moves during feeding. What is the most likely diagnosis in this infant?

A. Esophageal atresia

B. Duodenal atresia

C. IHPS

D. Intususception

Correct answer: C

Idiopathic Hypertrophic Pyloric Stenosis (IHPS) characteristically presents in infants between 2 and 6 weeks of age. The hallmark symptoms include projectile, non-bilious vomiting and the presence of a palpable "olive-shaped" mass in the epigastrium, which may show movement (peristalsis) during feeding. Ultrasound is the investigation of choice, typically showing a pyloric muscle thickness >3 mm. Regarding the distractors, Esophageal atresia (Option A) presents immediately at birth with drooling and inability to feed. Duodenal atresia (Option B) presents with bilious vomiting shortly after birth and the classic "double-bubble" sign. Intussusception (Option D) usually occurs in older infants (6–18 months) and presents with a "sausage-shaped" mass and "red currant jelly" stools rather than non-bilious projectile vomiting. Therefore, the

specific timing and nature of the vomiting and palpable mass definitively confirm IHPS.

Question 117. A 4-year-old unvaccinated child presents with fever, rash, and Bitot spots. What is the most appropriate line of management in this case?

A. Measles
Vaccine
+
Vitamin
A
Supplementation

B. Only Measles Vaccine

C. Only Vitamin A Supplementation

D. Supportive Care

Correct answer: C

The presence of a maculopapular rash and fever in an unvaccinated child suggests an active measles infection, while Bitot spots (keratinized patches on the conjunctiva) indicate severe concurrent Vitamin A deficiency. In cases of measles, Vitamin A supplementation is the critical intervention required to reduce morbidity and prevent blindness. The Measles vaccine (Option A and B) is not useful once the child is already symptomatic, as the infection itself will provide lifelong natural immunity. While general supportive care (Option D) is necessary for managing symptoms like fever, it does not address the specific and urgent need for Vitamin A in a child with ocular signs of deficiency. Therefore, the priority management focuses exclusively on high-dose Vitamin A to stabilize the corneal surface and support recovery from the viral insult.

Question 118. During a routine pediatric examination, a 5-month-old infant is observed to actively look at the mother’s face and show interest and recognition while she talks. At what age is this social–visual milestone normally achieved?

A. 2 months

B. 3 months

C. 6 months

D. 9 months

Correct answer: B

Recognizing the mother's face and responding with interest or anticipation is a significant social milestone normally achieved at 3 months of age. At this stage, the infant also demonstrates social engagement and may begin "cooing" in response to speech. Regarding the distractors, a social smile appears earlier, typically at 2 months (Option A). By 6 months (Option C), the infant

progresses to recognizing strangers and developing "stranger anxiety". By 9 months (Option D), milestones include waving "bye-bye" and using pincer grasp. Since the behavior described involves the specific recognition and engagement with a primary caregiver (mother), 3 months is the standard developmental expectation. Correct assessment of these milestones is essential for the early detection of neurodevelopmental delays.

Question 119. A newborn is brought to the emergency department with respiratory distress. On evaluation, imaging reveals a posterolateral diaphragmatic defect as shown in the X-ray. What is the most likely diagnosis?

A. Bochdalek hernia
B. Morgagni hernia
C. Hiatal hernia
D. Traumatic diaphragmatic hernia

Examination Paper January 2025 Question

Correct answer: A

The patient’s symptoms and X-ray findings indicate a congenital diaphragmatic hernia (CDH), specifically a Bochdalek hernia. This is the most common type of CDH, accounting for 90% of cases, and typically presents through a posterolateral defect, occurring predominantly on the left side (80–90%). Morgagni hernia (Option B) is a retrosternal defect occurring through the foramen of Morgagni and accounts for only 2–6% of cases. Hiatal hernia (Option C) occurs specifically at the esophageal hiatus and does not present with the massive herniation of abdominal organs seen here. Traumatic diaphragmatic hernia (Option D) is not the diagnosis in this newborn scenario because there is no history of significant trauma. Pathologically, CDH leads to lung compression and pulmonary hypoplasia, causing respiratory distress, cyanosis, and a scaphoid abdomen. Immediate management requires neonatal stabilization with intubation and gastric decompression before surgical repair is performed, usually after 48 hours.

Question 120. A 3-month-old infant is noted to have an increased respiratory rate, without chest

indrawing and no associated danger signs.
According to IMNCI guidelines, what is the
most appropriate diagnosis?

A. Pneumonia

B. Cold and cough

C. Severe Pneumonia (D) Allergy

Correct answer: A

According to the IMNCI classification for a sick child aged 2 months to 5 years, the diagnosis of pneumonia is based on fast breathing in the absence of severe signs. For an infant aged 2 months up to 12 months, "fast breathing" is defined as 50 breaths per minute or more. This 3-month-old's rate of meets the criteria. Since there is no chest indrawing and no general danger signs (such as inability to feed or lethargy), the child is classified as having pneumonia (Option A) rather than severe pneumonia (Option C). A diagnosis of "no pneumonia: cough or cold" (Option B) is only applied if no fast breathing or danger signs are present. Allergy (Option D) is not a standard IMNCI classification category for acute respiratory assessment. Treatment for pneumonia in this setting typically involves oral amoxicillin and home care advice.

Question 121. A child presents with diarrhoea, and a specific
clinical sign is observed on examination. Based
on this finding, which micronutrient deficiency
is most likely?

A. Zinc

B. Copper

C. Vitamin A

D. Vitamin C

Correct answer: A

The clinical picture of a child with diarrhea and a characteristic periorificial or acral rash indicates acrodermatitis enteropathica, caused by zinc deficiency. This condition results in dry, scaly skin lesions primarily in the periorificial, buttocks, and acral areas. Zinc deficiency is also associated with growth retardation, alopecia, and impaired immune function. Copper deficiency (Option B) presents with anemia and neutropenia rather than this specific rash. Vitamin A deficiency (Option C) typically presents with visual disturbances like night blindness. Vitamin C deficiency (Option D) leads to scurvy, characterized by gum bleeding and subperiosteal hemorrhages. Acrodermatitis enteropathica is often due to a genetic defect in intestinal zinc absorption (ZIP4 protein) or can be acquired through malnutrition or chronic diarrhea. Treatment involves elemental oral zinc therapy, which usually leads to rapid skin improvement.

Question 122. During the assessment of a 3-year-old child with
short stature, the measured height is 90 cm and

the lower segment length is 45 cm. Based on these findings, what is the most likely diagnosis?

A. Achondroplasia

B. Congenital hypothyroidism

C. Rickets

D. Spondyloepiphyseal dysplasia

Correct answer: D

In this case, the child's total height is 90 cm with a lower segment (LS) of 45 cm, making the upper segment (US) also 45 cm. This gives a US:LS ratio of 1:1. Since the normal US:LS ratio for a 3-year-old is 1.3:1, the finding indicates a shortened upper segment (short-trunk dwarfism). Spondyloepiphyseal dysplasia is a condition that specifically involves vertebrae and proximal epiphyses, resulting in this 1:1 ratio. Achondroplasia (Option A) and congenital hypothyroidism (Option B) both cause disproportionate short stature where the upper segment is longer than the lower segment (US > LS). Rickets (Option C) typically presents with skeletal deformities like bowing and can cause a US > LS ratio. Therefore, the specific 1:1 ratio accurately points toward spondyloepiphyseal dysplasia as the most likely underlying genetic condition for this child's short stature.

Question 123. A baby presents with chronic diarrhoea along with a skin rash resembling acrodermatitis. Based on this clinical presentation, what is the most likely nutritional deficiency?

A. Zinc deficiency

B. Selenium deficiency

C. Niacin deficiency

D. Magnesium deficiency

Correct answer: A

The combination of chronic diarrhea and a periorificial or acral rash is characteristic of zinc deficiency, often manifesting as the genetic disorder acrodermatitis enteropathica. This condition presents with a hallmark dermatitis around the mouth, hands, feet, and perineum, alongside alopecia and failure to thrive. It typically occurs due to impaired zinc absorption. Selenium deficiency (Option B) is associated with cardiomyopathy (Keshan disease) but not acrodermatitis. Niacin deficiency (Option C) causes pellagra, featuring the "3 Ds" (diarrhea, dermatitis, dementia), but the resulting rash is usually photosensitive and occurs in sun-exposed areas rather than periorificial sites. Magnesium deficiency (Option D) causes neuromuscular issues like tetany and seizures rather than this specific rash pattern. Zinc plays a crucial role in intestinal integrity and immune function, so its deficiency leads to both the dermatological and gastrointestinal symptoms described.

Question 124. A child is noted to have a right transverse palmar crease, an associated cardiac defect, survival beyond infancy, and mild intellectual disability. Which chromosomal abnormality is most likely responsible for this presentation?

A. Tetralogy

B. Haploid

C. Monosomy

D. Mosaicism

Correct answer: D

The features described, including a transverse palmar crease, cardiac defect, and intellectual impairment, are classic for Down Syndrome (Trisomy 21). In this case, the survival into childhood with only "mild" impairment suggests Mosaicism, which occurs in about 1% of cases. Mosaicism results from a post-zygotic mitotic error, leading to a mixture of normal and trisomy 21 cells; this often results in a milder clinical phenotype than full meiotic nondisjunction. Tetralogy (Option A) likely refers to Tetralogy of Fallot, a heart defect that can occur in syndromes but is not a chromosomal abnormality itself. Haploid (Option B) refers to a single set of chromosomes (23), which is incompatible with human life. Monosomy (Option C) is the loss of a chromosome, such as in Turner syndrome (45,X). Mosaicism allows for a broad range of developmental outcomes.

Question 125. A girl presents with microcephaly accompanied by a characteristic high-pitched cry. Which chromosomal abnormality is most likely responsible for this presentation?

A. Deletion

B. Isochromosome

C. Trisomy

D. Mosaicism

Correct answer: A

Microcephaly combined with a characteristic high-pitched, "cat-like" cry is the clinical hallmark of Cri-du-chat syndrome. This condition is caused by a congenital chromosomal deletion on the short arm of chromosome 5 (designated as 5p−). Other associated features include hypotonia, moderate to severe intellectual disability, and facial dysmorphisms like epicanthal folds. An isochromosome (Option B) results from the duplication of one chromosome arm and the loss of another, commonly seen in Turner syndrome variants. Trisomy (Option C) refers to an extra chromosome (e.g., Trisomy 21 or 18); while these can cause microcephaly, they do not present with the unique cat-like cry. Mosaicism (Option D) involves a mixture of cell lines and leads to a

broad spectrum of phenotypes but is not the primary mechanism of Cri-du-chat. Therefore, the specific combination of small head size and a distinctive cry strongly points to a chromosomal deletion.

Question 126. A 9-month-old infant is admitted to the ICU with a history of recurrent sinusitis and otitis media caused by Staphylococcus aureus. Laboratory investigations reveal markedly reduced levels of serum IgA, IgG, IgM, and IgE, along with an absence of plasma B cells. Which immunodeficiency disorder is most consistent with these findings?

A. Ataxia telangiectasia

B. Chronic granulomatosis disease

C. Bruton syndrome

D. Di George syndrome

Correct answer: C

Bruton Syndrome, also known as X-linked agammaglobulinemia (XLA), is a primary immunodeficiency characterized by a failure of B-cell maturation. This results in an almost total absence of mature plasma B cells and very low or undetectable levels of all immunoglobulin classes (IgG, IgA, IgM, and IgE). Because maternal antibodies wane around 6 months of age, symptoms typically appear thereafter as recurrent sinopulmonary bacterial infections, such as sinusitis or otitis media caused by organisms like Staph aureus. Ataxia telangiectasia (Option A) presents with IgA deficiency and ataxia but not total B-cell absence. Chronic Granulomatous Disease (Option B) involves defective neutrophil function, not antibody deficiency. DiGeorge Syndrome (Option D) results from T-cell deficiency due to thymic hypoplasia. XLA is managed with lifelong immunoglobulin replacement therapy, and live vaccines are strictly contraindicated.

Question 127. A child presents with recurrent Staphylococcus infections. Laboratory evaluation reveals markedly reduced levels of immunoglobulins (IgG, IgA, IgM, and IgE) along with a decreased

number of B cells, while skin tests show a
normal response to environmental antigens.
What is the most likely diagnosis?

A. Bruton's agammaglobulinemia
B. DiGeorge syndrome
C. Hyper IgM syndrome
D. Common variable immunodeficiency

Correct answer: A

Bruton's X-linked Agammaglobulinemia (XLA) is caused by a mutation in the BTK gene, leading to a failure in B-cell maturation. Clinically, it presents as a near-total absence of mature B cells and very low levels of all immunoglobulin classes (IgG, IgA, IgM, and IgE). A critical diagnostic clue is the "normal reaction to environmental antigens," which signifies that T-cell function and cellular immunity are intact. DiGeorge syndrome (Option B) involves T-cell deficiency due to thymic hypoplasia, making skin reactions abnormal. Hyper IgM syndrome (Option C) would show elevated IgM levels. Common Variable Immunodeficiency (Option D) presents similarly but usually manifests later in life, whereas XLA appears in infancy as maternal antibodies wane. Treatment requires lifelong immunoglobulin replacement therapy, and patients must avoid live vaccines.

Question 128. What is the recommended treatment for
nephrotic syndrome in children?

A. Steroids
B. Steroids and cyclophosphamide
C. Cyclophosphamide
D. ACE inhibitors

Correct answer: A

Corticosteroids, such as oral prednisolone, are the first-line and mainstay treatment for nephrotic syndrome in children. This is because Minimal Change Disease (MCD) accounts for about 80% of pediatric cases and typically shows a high response rate to high-dose steroids. Remission of edema and proteinuria often occurs within 10–14 days of therapy. Steroids and cyclophosphamide (Option B) or cyclophosphamide alone (Option C) are second-line treatments reserved for children who are steroid-resistant or frequent relapsers. ACE inhibitors (Option D) are adjunctive therapies used to reduce residual proteinuria and control blood pressure but are not the primary treatment for the underlying disease. Therefore, standard initial management always begins with a steroid regimen, only escalating to immunosuppressants like cyclophosphamide if resistance develops.

Question 129. A child presents with a beaded appearance
of the chest on clinical examination, and the

corresponding chest X-ray is shown. What is the most likely diagnosis?

A. Scurvy

B. Rickets

C. Beri Beri

D. Pellagra

Correct answer: B

The clinical presentation of a "beaded appearance" on the chest, known as a rachitic rosary, combined with X-ray findings of metaphyseal fraying and cupping, is diagnostic of rickets. Rickets results from Vitamin D deficiency, which leads to impaired bone mineralization at the growth plates. Physical signs often include frontal bossing, delayed fontanel closure, and bowing of long bones. Scurvy (Option A), caused by Vitamin C deficiency, presents with a "scorbutic rosary" that is sharp rather than beaded, along with gum bleeding and subperiosteal hemorrhages. Beriberi (Option C) is due to Thiamine deficiency and presents with cardiac or neurological symptoms, while Pellagra (Option D) is due to Niacin deficiency, causing the "3 Ds" of dermatitis, diarrhea, and dementia. Treatment for rickets involves high-dose Vitamin D supplementation (Stoss therapy) and oral calcium.

ORTHOPEDICS

Question 130. A 30-year-old individual was involved in a motorcycle accident and presents with the following clinical or imaging findings. What is the most likely diagnosis?

A. Anterior hip dislocation

B. Posterior hip dislocation

C. Superior hip dislocation

D. Both a and b

Correct answer: A

The clinical photograph shows the affected limb in a position of abduction and external rotation, which is pathognomonic for an anterior hip dislocation. This injury typically occurs during high-energy trauma, such as a bike accident, when a force is applied to an abducted leg. In contrast, posterior hip dislocation (Option B) is much more common (dashboard injury) and presents with the opposite deformity: flexion, adduction, and internal rotation. Superior hip dislocation (Option C) is extremely rare and usually associated with extensive pelvic fractures. Option D is incorrect as the clinical presentation for anterior and posterior dislocations is mutually exclusive due to the different positions of the femoral head. Therefore, the visible external rotation and abduction in this patient definitively identify the dislocation as anterior.

Question 131. A 23-year-old man with epilepsy presents with

pain in the right shoulder. On examination, the right upper limb is found to be abducted and externally rotated, and active movements are not possible. What is the most likely diagnosis?

A. Intrathoracic dislocation of shoulder

B. Luxation erecta

C. Subglenoid dislocation of shoulder

D. Posterior dislocation of shoulder

Correct answer: C

The patient’s limb position—abducted and externally rotated—is the classic presentation of an anterior shoulder dislocation. Subglenoid dislocation is a common subtype of anterior dislocation where the humeral head rests inferior to the glenoid fossa. Regarding the distractors, posterior dislocation (Option D) is classically associated with seizures (epilepsy) but presents with adduction and internal rotation. Luxatio erecta (Option B), or inferior dislocation, is rare and presents with the arm locked in hyper-abduction over the head. Intrathoracic dislocation (Option A) is an extreme rarity where the head enters the rib cage. While the history of epilepsy often points toward a posterior dislocation, the specific physical examination findings of external rotation and abduction in this case override the history and definitively confirm an anterior (subglenoid) dislocation.

Question 132. Which nerve will be involved in the following finding on rest?

Examination Paper January 2025 Question

A. Ulnar

B. Median

C. Musculocutaneous

D. None

Correct answer: A

The image depicts an "Ulnar Claw Hand," which occurs due to an injury to the ulnar nerve. This deformity is characterized by hyperextension at the metacarpophalangeal (MCP) joints and flexion at the proximal and distal interphalangeal (PIP/DIP) joints, most prominently in the 4th and 5th fingers. It results from the loss of function in the medial lumbricals and interosseous muscles. Median nerve injury (Option B) leads to "Hand of Benediction" (seen only when attempting to make a fist) or "Ape Hand" deformity due to loss of thumb opposition. The musculocutaneous nerve (Option C) primarily controls elbow flexion and does not cause a specific hand deformity. The "ulnar paradox" states that higher lesions of the ulnar nerve result in less obvious clawing because the long finger flexors are also paralyzed. Therefore, the

specific resting position of the medial two fingers is diagnostic of distal ulnar palsy.

Question 133. Identify the instrument:

A. Bohler braun splint

B. Thomas splint

C. Volkmann splint

D. Cramer wire

Correct answer: A

The instrument shown is the Bohler Braun Splint, a heavy metallic frame equipped with four pulleys for applying traction to the lower limb. It is used for fractures of the femoral shaft, supracondylar area, and occasionally tibial fractures. Its design helps prevent foot drop and ensures traction is maintained in the appropriate anatomical line. A Thomas splint (Option B) is another common traction device but features a distinct proximal ring to support the thigh. The Volkmann splint (Option C) is primarily used for the forearm to prevent contractures after injury. Cramer wire (Option D) is a simple, malleable metal ladder-like splint used for temporary immobilization and kontouring to limb shapes. While effective, the Bohler Braun splint is cumbersome and poses risks associated with long-term recumbency, such as bedsores or pneumonia.

Question 134. A 42-year-old woman who works as a laborer presents with a visible, soft, and fluctuant swelling located anterior to the knee over the patella, accompanied by discomfort and difficulty in knee movements. MRI findings are provided. What is the most likely diagnosis?

A. Housemaid's knee

B. Subdermal abscess

C. Gout

D. Rheumatoid arthritis

Correct answer: A

"Housemaid's knee" is the clinical term for prepatellar bursitis, which is the inflammation of the fluid-filled bursa located directly in front of the patella. It is caused by repetitive trauma or prolonged pressure from kneeling, making it common in laborers. The characteristic presentation is a soft, fluctuating swelling over the kneecap that causes discomfort during movement. A subdermal abscess (Option B) would be tender, red, and warm with pus accumulation rather than just fluid. Gout (Option C) typically causes intense inflammation within the joint itself, presenting with severe pain and redness. Rheumatoid arthritis (Option D) is a systemic autoimmune disease affecting joints symmetrically with stiffness and deformity. MRI findings in bursitis show a clear fluid-filled space anterior to the bone. This condition is

distinct from "clergyman's knee," which involves the infrapatellar bursa.

Question 135. A 34-year-old man undergoes an open appendectomy for acute appendicitis using a McBurney’s incision. A few days after surgery, he develops pain and a bulge in the right lower quadrant and is diagnosed with an indirect inguinal hernia. Injury to which nerve during the appendectomy is most likely responsible for this complication?

A. Ilioinguinal nerve

B. Femoral nerve

C. Genitofemoral nerve

D. Pudendal nerve

Correct answer: A

Injury to the ilioinguinal nerve is a known complication of an appendectomy, particularly when using a McBurney's incision. This nerve supplies the internal oblique and transversus abdominis muscles; its damage can weaken the abdominal wall, leading to the later development of an indirect inguinal hernia. The femoral nerve (Option B) supplies the anterior thigh and is located deeper and more laterally, making it an unlikely target during standard appendectomy. The genitofemoral nerve (Option C) and pudendal nerve (Option D) supply the genital region and perineum and are not typically at risk during this superficial right lower quadrant dissection. While wound infection is the most common early complication, nerve injury is a significant cause of long-term morbidity. Careful surgical technique is required to identify and preserve the ilioinguinal nerve within the muscle layers.

OBS & GYNE

Question 136. Edematous villi with chromosome XY was found. What will be the diagnosis?

A. Complete mole

B. Partial mole

C. Cyst

D. Ectopic pregnancy

Correct answer: A

A complete hydatidiform mole is characterized by a diploid karyotype, most commonly 46,XX but also 46,XY (Option A). It results from the fertilization of an "empty" ovum by one or two sperm, meaning the genetic material is entirely paternal. Histopathology classically shows diffuse hydropic swelling (edematous villi) and a complete absence of fetal tissue. In contrast, a partial mole (Option B) is usually triploid (e.g., 69,XXY) and contains identifiable fetal parts alongside both normal and edematous villi. A simple cyst (Option C) would not show placental villous architecture or specific chromosomal anomalies. An ectopic pregnancy (Option D) involves a normal embryo implanted outside the uterus and does not exhibit the diffuse trophoblastic hyperplasia seen in molar pregnancies. Thus, the specific findings of edematous villi and an XY diploid karyotype confirm a complete molar pregnancy.

Question 137. OCPs are not protective for?

A. Breast Ca

B. Colorectal Ca

C. Endometrial Ca

D. Ovarian Ca

Correct answer: A

Combined Oral Contraceptive Pills (OCPs) are not protective against breast cancer and may actually be associated with a slight increase in risk (approximately 25%), especially in long-term users who started at a young age. However, this risk generally disappears within ten years of stopping the medication. In contrast, OCPs provide significant, well-documented protection against other malignancies. They reduce the risk of endometrial cancer (Option C) by over 30% and ovarian cancer (Option D) by 30–50% by suppressing ovulation and endometrial proliferation. There is also evidence that OCP use is protective against colorectal cancer (Option B), reducing the risk by roughly 15–20%. Cervical cancer risk may also be increased by OCPs, but breast cancer is the most classic "non-protected" malignancy listed. Therefore, while OCPs have significant non-contraceptive benefits, breast health requires separate screening protocols.

Question 138. Which sign of pregnancy denotes the following?

A. Hegar Sign

B. Goodell Sign

C. Osiander sign

D. Palmer sign

Correct answer: A

The clinical image illustrates Hegar’s sign, an early objective sign of pregnancy typically elicited between 6 and 10 weeks of gestation. It is characterized by the marked softening of the lower uterine segment (the isthmus), which allows the examiner's fingers during a bimanual exam to feel as though they are meeting. Regarding the distractors, Goodell's sign (Option B) refers to

the softening of the cervix (similar to the feel of a lip vs. the nose). Osiander's sign (Option C) is the detection of increased pulsations in the lateral vaginal fornices. Palmer's sign (Option D) refers to regular and rhythmic uterine contractions felt during pelvic examination in early pregnancy. Since the examination technique shown specifically targets the softness between the cervix and the body of the uterus, it definitively represents Hegar’s sign.

Question 139. This instrument is contraindicated for?

A. Caesarean section

B. Obstructed labor

C. After coming head of breech

D. Occipital posterior position

Correct answer: B

Obstetric forceps are instruments designed to assist in the vaginal delivery of the fetal head by providing traction or rotation. Their use is strictly contraindicated in cases of obstructed labor. In obstructed labor, there is a physical mismatch (such as cephalopelvic disproportion) that prevents safe passage; applying forceps in this situation can lead to catastrophic maternal and fetal injuries, including uterine rupture and fetal skull fractures. Regarding the other options, forceps can be used during a Caesarean section (Option A) to help extract a deeply engaged head. Specific types, like Piper forceps, are used for the after-coming head of a breech (Option C). Kielland forceps are used for rotation in occipital posterior positions (Option D). Therefore, only obstructed labor presents a complete contraindication to their use, necessitating an immediate surgical alternative like a C-section.

Question 140. Following image denote which side of placenta?

A. Fetal

B. Maternal

C. Decidual surface

D. Basal plate

Correct answer: A

The image depicts the fetal surface of the placenta, also known as the chorionic plate. This side is characterized by its smooth, shiny, and bluish-white appearance, covered by the transparent amnion. Critically, the umbilical cord is seen attaching directly to this surface, and large fetal vessels are visible radiating from the cord insertion. In contrast, the maternal surface (Options B and D), also known as the basal plate, is rough, dull, and dark red, divided into 15–20 cotyledons by septa. The decidual surface (Option C) refers specifically to the maternal tissue (decidua basalis) that remains attached to the maternal side of the placenta after delivery. Therefore, the presence of the umbilical cord and the smooth chorionic membrane makes it clear that this is the fetal side.

Question 141. Which findings are suggestive of tubal pregnancy?

A. Ovarian mass with single layer of endometrium

B. Adnexal mass with empty uterus

C. Trilayer endometrium without adnexal mass

D. Adnexal mass with empty uterus and fluid in pelvis

Correct answer: D

A tubal (ectopic) pregnancy is suspected when a patient presents with abdominal pain and a positive pregnancy test, but without an intrauterine gestational sac. The most suggestive ultrasound finding is an adnexal mass (the ectopic sac) in the presence of an empty uterus. The additional finding of fluid in the pelvis (Pouch of Douglas) significantly increases the suspicion of a ruptured tubal pregnancy or leakage, indicating hemoperitoneum. Regarding the distractors, an ovarian mass (Option A) often represents a corpus luteum cyst rather than an ectopic pregnancy. Option B is suggestive but less definitive than Option D, as pelvic fluid provides critical diagnostic weight. A trilayer endometrium (Option C) is a normal finding in the proliferative phase or early pregnancy and does not indicate an ectopic location. Thus, the combination in Option D is the most classic and serious diagnostic profile.

Question 142. A woman presents with hirsutism, delayed or irregular menstrual cycles, and obesity. Ultrasonography findings are provided. What is the most likely diagnosis?

A. PCOS (Polycystic Ovary Syndrome)

B. POI (Primary Ovarian Insufficiency)

C. OHSS (Ovarian Hyperstimulation Syndrome)

D. Thecal luteal cyst

Correct answer: A

The clinical triad of hirsutism, obesity, and oligomenorrhea (delayed periods), combined with the "necklace pattern" or "string of pearls" of follicles on ultrasound, is diagnostic of PCOS. PCOS is a metabolic-endocrine disorder characterized by hyperandrogenism and ovulatory dysfunction. Regarding the distractors, POI (Option B) involves premature menopause with amenorrhea and depleted follicles, not multiple cysts. OHSS (Option C) is an acute, severe complication of fertility treatment presenting with massive ovarian enlargement and ascites. Thecal luteal cysts (Option D) are large, bilateral multiloculated cysts caused by high hCG levels in molar pregnancies. Since this patient presents with chronic symptoms and the classic sub-capsular follicular arrangement on ultrasound, PCOS is the most probable diagnosis.

Question 143. After undergoing a vasectomy, for how long is a patient advised to continue using alternative contraceptive methods??

A. 1 month

B. 2 months

C. 3 months

D. 6 months

Correct answer: C

Sterility is not achieved immediately after a vasectomy because viable sperm remain in the distal portion of the vas deferens. Patients are advised to use alternative contraception for approximately 3 months or until they have had at least 20 ejaculations. Confirmation of sterility is mandatory through semen analysis, which must show azoospermia in two consecutive samples. Option A (1 month) and Option B (2 months) are insufficient timeframes, as studies show that while 80% of men are sterile by 6 weeks, nearly 10% still have sperm present at 10 weeks. Option D (6 months) is longer than the standard clinical recommendation for initial follow-up. Failure to adhere to this waiting period is a common cause of "failed" vasectomy and unintended pregnancy. Therefore, the 3-month guideline provides a safe buffer for the physiological clearance of stored sperm.

Examination Paper January 2025 Question

Question 144. Which of the following drugs were not given for hypertension in pregnancy?

A. Methyldopa

B. Enalapril

C. Labetalol

D. Nifedipine

Correct answer: B

Enalapril is an ACE inhibitor and is strictly contraindicated during all stages of pregnancy. These drugs are highly teratogenic and can cause severe fetal complications, including renal dysgenesis, oligohydramnios, skull hypoplasia, and intrauterine growth restriction. Methyldopa (Option A) is a centrally acting alpha-2 agonist and has historically been the gold standard for long-term management due to its proven safety profile. Labetalol (Option C) is a combined alpha and beta-blocker frequently used as first-line therapy for acute severe hypertension in pregnancy. Nifedipine (Option D) is a calcium channel blocker considered safe and effective for controlling blood pressure without affecting uterine blood flow. Because ACE inhibitors like Enalapril interfere with the vital fetal renin-angiotensin system, they must be discontinued immediately upon the recognition of pregnancy in favor of the safer alternatives mentioned.

Question 145. Which therapy is given for cervical cancer?

A. Immunotherapy

B. Hormonal therapy

C. Targeted therapy

D. Platinum-based therapy

Correct answer: D

Platinum-based chemotherapy, specifically Cisplatin, is the gold standard for treating advanced, recurrent, or metastatic cervical cancer. It is most commonly used in "concurrent chemoradiation," where Cisplatin is administered alongside radiotherapy to act as a radiosensitizer, significantly improving survival rates in locally advanced cases. Option B (Hormonal therapy) is incorrect because cervical cancer is not hormone-dependent, unlike breast or endometrial cancers. While targeted therapy (Option C, e.g., Bevacizumab) and immunotherapy (Option A, e.g., Pembrolizumab) are increasingly used as adjuncts for specific indications, they are not the primary, first-line systemic treatment across all advanced stages. Carboplatin may also be used in patients who cannot tolerate Cisplatin due to renal issues. Therefore, because of its foundational role in standard chemoradiation protocols, platinum-based therapy is the most accurate answer for general cervical cancer management.

Question 146. Which of the following is the duration of abstinence post vasectomy?

A. 3 months

B. 7 months

C. 8 months

D. 5 months

Correct answer: A

Post-vasectomy, a man is not considered sterile until all stored sperm in the reproductive tract are cleared. The standard medical advice is to use alternative contraception or practice

abstinence for a duration of 3 months. This timeframe typically corresponds to roughly 20 ejaculations, which is the volume required to flush out remaining viable sperm. Confirmation of success must be obtained via a semen analysis showing zero sperm count before discontinuing protection. Options B (7 months), C (8 months), and D (5 months) are all significantly longer than the standard 12-week guideline. While individual clearance rates can vary, 3 months is the universally accepted clinical benchmark for initial follow-up testing. Relying on the procedure immediately after surgery can lead to unwanted pregnancy, making the 3-month buffer period critical for patient safety.

Question 147. A woman who underwent a forceps-assisted delivery 24 hours ago presents with severe perineal pain. Her blood pressure is 80/60 mmHg, and examination reveals a perineal swelling with bluish discoloration. Which of the following management steps should not be performed in this situation??

A. Repair the wound in the ward

B. Give Blood Transfusion

C. Shift patient to OT

D. Inform senior about her

Correct answer: A

This patient is presenting with a postpartum vulvar hematoma, a serious complication of instrumental delivery. The hypotension (BP 80/60) indicates significant internal blood loss and impending shock. Attempting to repair or explore the wound in the ward (Option A) is dangerous and strictly discouraged, as it does not allow for proper anesthesia, sterile conditions, or the adequate lighting needed to achieve complete hemostasis. Shifting the patient to the Operating Theater (Option C) for surgical exploration and ligation of the bleeding vessel is the correct management. Giving a blood transfusion (Option B) is essential to stabilize her hemodynamics. Informing a senior obstetrician (Option D) is also mandatory for expert management of a life-threatening hemorrhage. Therefore, the only inappropriate action is attempting a bedside repair in an unstable patient.

Question 148. Fetal anaemia is monitored by?

A. MCA-PSV

B. Maternal blood

C. Fetal blood

D. Amniocentesis

Correct answer: A

The monitoring of fetal anemia, particularly in cases of Rh isoimmunization, is primarily done

using Middle Cerebral Artery Peak Systolic Velocity (MCA-PSV) Doppler ultrasound. This non-invasive tool is based on the principle that anemic fetuses increase their cardiac output and decrease blood viscosity, leading to a measurable increase in the velocity of blood flow in the cerebral arteries. An MCA-PSV value greater than 1.5 Multiples of the Median (MoM) for gestational age predicts moderate to severe anemia with high sensitivity. While maternal blood tests (Option B) like the Indirect Coombs Test help identify the risk of sensitization, they cannot measure the current degree of fetal anemia. Fetal blood sampling (Option C) and amniocentesis (Option D) are invasive procedures used for definitive diagnosis or treatment (intrauterine transfusion) but are not used for routine surveillance. Thus, MCA-PSV is the modern mainstay for safe fetal monitoring.

Question 149. A woman experiences a difficult labor and, seven days after surgery, complains of continuous dribbling of urine. What is the most likely diagnosis?

A. VVF (Vesicovaginal Fistula)

B. UVF (Ureterovaginal Fistula)

C. Rectovaginal fistula

D. VUF (Vesicouterine Fistula)

Correct answer: A

The clinical scenario of continuous, involuntary dribbling of urine following a difficult or obstructed labor is the classic presentation of a Vesicovaginal Fistula (VVF). VVF is an abnormal passage between the bladder and the vagina, usually caused by tissue necrosis from prolonged compression by the fetal head. In developing countries, obstructed labor is the most common cause. Ureterovaginal fistula (Option B) is more common following gynecological surgeries like hysterectomy rather than labor. Rectovaginal fistula (Option C) results in the passage of feces or gas through the vagina, not urine. Vesicouterine fistula (Option D) involves a connection to the uterus and often presents with menstrual blood in the urine (menouria). Diagnosis is usually confirmed via a dye test (methylene blue) or cystoscopy. Thus, the history of difficult labor combined with urinary incontinence makes VVF the most likely diagnosis.

Question 150. A 29-year-old woman presents with abdominal pain and vaginal bleeding after 6 weeks of amenorrhea. Transvaginal ultrasonography does not reveal an intrauterine gestational sac or any signs of ectopic pregnancy. Her serum β-hCG level is 1,200 IU/L, which is below the

discriminatory zone. What should be the next step in management?

A. Laparoscopy

B. Methotrexate therapy

C. Repeat β-hCG after 48 hours

D. Dilatation and curettage

Correct answer: C

In a hemodynamically stable patient with a pregnancy of unknown location, the immediate priority is to determine if the pregnancy is viable. The discriminatory zone for visualizing a gestational sac via transvaginal ultrasound (TVS) is typically IU/L. Since this patient's level is 1,200 IU/L, the absence of an intrauterine sac is not diagnostic of an ectopic pregnancy. The next step is to repeat the serum β-hCG after 48 hours. A normal pregnancy should show a doubling of the level, whereas a plateauing or declining level suggests an ectopic pregnancy or early loss. Laparoscopy (Option A) and Dilatation and curettage (Option D) are invasive and reserved for higher β-hCG levels or clinical instability. Methotrexate (Option B) is only given after an ectopic pregnancy is confirmed. Therefore, expectant monitoring of the β-hCG trend is the appropriate standard of care.

Question 151. A 32-year-old pregnant woman attends a routine antenatal visit at 28 weeks of gestation. She has a history of obesity but no prior diagnosis of diabetes. Her fasting plasma glucose is 104 mg/dL, and her 2-hour plasma glucose level following a 75 g oral glucose tolerance test (OGTT) is 167 mg/dL. Based on these results, what is the most appropriate next step in management?

A. Start lifestyle modifications and repeat OGTT at 32 weeks gestation.

B. Diagnose her with pre-existing diabetes and initiate insulin therapy.

C. Diagnose her with GDM and initiate dietary modifications with close monitoring of blood glucose levels.

D. Monitor her closely without intervention since her glucose levels are borderline.

Correct answer: C

According to standard diagnostic criteria, Gestational Diabetes Mellitus (GDM) is diagnosed if the fasting plasma glucose is mg/dL or the 2-hour post-OGTT level is mg/dL. This patient

meets both criteria (mg/dL and mg/dL), confirming a diagnosis of GDM. The immediate next step is dietary and lifestyle modifications combined with frequent blood glucose monitoring to ensure levels stay within the target range. Regarding the distractors, repeating the test (Option A) is unnecessary as the diagnosis is already established. Pre-existing diabetes (Option B) requires much higher thresholds (fasting mg/dL) and history before conception. Simply monitoring without intervention (Option D) is inappropriate, as uncontrolled GDM increases the risk of macrosomia and other fetal complications. Thus, the establishment of a management plan for GDM is required.

Question 152. All of the following are protected by OCPs except?

A. Carcinoma breast

B. Carcinoma endometrium

C. Colonic cancer

D. Ovarian cancer

Correct answer: A

Oral Contraceptive Pills (OCPs) are well-known to have several non-contraceptive benefits, but they do not protect against breast cancer. In fact, OCP use is associated with a slight increase in risk (approximately 25%), especially in women who start using them before age 24. In contrast, OCPs provide strong protection against carcinoma endometrium (Option B), reducing the risk by at least 30%, and ovarian cancer (Option D), reducing the risk by 30–50%. They also provide a protective effect against colonic (colorectal) cancer (Option C), with studies showing a risk reduction of 15–20%. Cancer of the breast is actually listed as an absolute contraindication for OCP use. Therefore, while OCPs are highly beneficial for preventing many gynecological and colonic malignancies, breast cancer risk is the notable exception.

Question 153. A 30-year-old woman, one week after delivering a healthy full-term baby, presents to the obstetrics and gynecology clinic with complaints of a pale brownish vaginal discharge that has a fishy odor. What is the nature of this discharge?

A. Lochia Rubra

B. Lochia Serosa

C. Lochia Alba

D. Leukorrhea

Correct answer: B

The vaginal discharge seen during the first few weeks postpartum is called lochia. Based on the timing (one week ago) and appearance (pale brownish or pinkish), the discharge is classified as Lochia Serosa, which characteristically occurs between days 5 and 9 of the puerperium. It is

composed of wound exudate and mucus and often has a fishy smell. Regarding the distractors, Lochia Rubra (Option A) is red, contains blood, and is seen only in the first 1–4 days. Lochia Alba (Option C) is pale white or yellowish and is seen after the 10th day. Leukorrhea (Option D) is a profuse white discharge usually associated with vaginitis or subinvolution rather than normal postpartum recovery. Thus, the specific one-week timing and brownish color definitively identify the discharge as lochia serosa.

Question 154. Which of the following methods is used to measure fetal anemia?

A. Umbilical artery Doppler

B. Cord blood sampling

C. Chorionic villus sampling

D. Peak systolic velocity in the fetal middle cerebral artery (MCA)

Correct answer: D

The measurement of Peak Systolic Velocity in the fetal Middle Cerebral Artery (MCA-PSV) is the non-invasive gold standard for detecting fetal anemia. In anemic states, blood viscosity decreases, which leads to a compensatory increase in the velocity of blood flow through the MCA. This is measured using Doppler ultrasonography and compared to normative values. Umbilical artery Doppler (Option A) is primarily used to assess placental insufficiency rather than anemia. While cord blood sampling (Option B) can directly measure hemoglobin levels, it is highly invasive and carries significant procedural risks. Chorionic villus sampling (Option C) is utilized for genetic testing in the first trimester, not for evaluating anemia. Therefore, MCA-PSV is the preferred first-line screening tool for monitoring pregnancies at risk of Rh isoimmunization or other causes of fetal red cell depletion.

Question 155. Shoulder dystocia is diagnosed when delivery of the anterior shoulder is delayed beyond how much time after the delivery of the fetal head?

A. 15 sec

B. 30 sec

C. 45 sec

D. 60 sec

Correct answer: D

Shoulder dystocia is defined as a delivery that requires maneuvers beyond gentle traction to deliver the shoulders. A specific clinical criterion used is a head-to-body delivery time exceeding 60 seconds. It occurs when the anterior fetal shoulder impacts the maternal symphysis pubis. A key clinical indicator is the "turtle sign," where the fetal head retracts against the perineum. Options A, B, and C represent timeframes shorter than the standard diagnostic threshold.

Management involves a sequential series of maneuvers, starting with the McRoberts maneuver, which involves hyperflexing the maternal thighs to increase the pelvic outlet. Suprapubic pressure is also applied to rotate the shoulder. If these fail, more invasive rotational maneuvers like Wood’s corkscrew or delivery of the posterior arm are attempted. This condition is an obstetric emergency due to the high risk of neonatal brachial plexus injury and maternal soft tissue lacerations.

Question 156. A 27-year-old woman presents with menstrual irregularities, acne, and excessive hair growth.
What is the first-line approach to management?

A. Metformin
B. Lifestyle modifications
C. OCPs
D. Clomiphene citrate

Correct answer: B

The patient's presentation of irregular cycles, acne, and hirsutism is highly suggestive of Polycystic Ovary Syndrome (PCOS). For all PCOS patients, the definitive first-line management is lifestyle modification, which includes weight loss, a healthy diet, and regular exercise. Even a modest 5% reduction in body weight can significantly improve hormonal balance, restore ovulation, and enhance insulin sensitivity. Oral Contraceptive Pills (Option C) are the first-line medical therapy specifically for regulating menstrual cycles and treating hirsutism, but they follow lifestyle changes. Metformin (Option A) is an insulin sensitizer used primarily for patients with metabolic issues or insulin resistance. Clomiphene citrate (Option D) is used for ovulation induction in patients seeking fertility but is not the general first-line management for the syndrome itself. Thus, non-pharmacological interventions are prioritized to address the underlying metabolic disturbances of PCOS.

Question 157. What is the hormonal check for pregnancy at home?

A. Beta-HCG
B. Estrogen
C. Progesterone
D. HPL

Correct answer: A

Home pregnancy tests function by detecting the beta subunit of human chorionic gonadotropin (β-hCG) in the urine. This hormone is secreted by the syncytiotrophoblast shortly after implantation, which typically occurs about 5–6 days post-ovulation. It is generally detectable in the urine by 10 days after ovulation. β-hCG is critical for maintaining the corpus luteum to ensure continued progesterone production until the placenta is fully functional. Estrogen

(Option B) and Progesterone (Option C) are essential for maintaining pregnancy but are not used as diagnostic markers for initial detection. Human Placental Lactogen (hPL) (Option D) is secreted by the placenta to regulate maternal metabolism and ensure glucose availability for the fetus, but it appears much later in pregnancy than hCG. Therefore, β-hCG remains the earliest and most reliable biochemical marker for confirming pregnancy at home.

Question 158. Identify the CTG pattern?

A. Early deceleration

B. Late decelerations

C. Variable

D. Normal

Correct answer: A

The CTG pattern shows early decelerations, which are characterized by a gradual decrease in fetal heart rate (FHR) where the nadir (lowest point) coincides exactly with the peak of the uterine contraction. The onset and recovery of the heart rate drop mirror the beginning and end of the contraction. This pattern is benign and typically results from fetal head compression during labor. Late decelerations (Option B) begin after the contraction starts and reach their nadir well after the contraction's peak, indicating uteroplacental insufficiency. Variable decelerations (Option C) are abrupt drops in heart rate with an irregular shape (often V or W) that vary in their relationship to contractions, usually signaling umbilical cord compression. A "normal" CTG (Option D) would show accelerations and good variability without these specific drops. Early decelerations require only monitoring as they are not indicative of fetal distress.

Question 159. Spot the image.

A. Balloon Tamponade

B. Umbrella pack

C. Parachute pack

D. Cervical ablation

Correct answer: A

The image illustrates a Balloon Tamponade, a critical intervention for managing postpartum hemorrhage (PPH) caused by uterine atony. Devices such as the Bakri balloon are inserted into the uterine cavity and inflated with fluid to provide mechanical compression against bleeding vessels in the uterine wall. An umbrella pack (Option B) is a surgical technique where a plastic bag filled with gauze is placed transabdominally to control pelvic bleeding after procedures like a hysterectomy. A parachute pack (Option C) is a variation of the umbrella pack that uses weighted pressure to control diffuse pelvic hemorrhage. Cervical ablation (Option D) is a treatment for precancerous lesions and has no role in the management of acute hemorrhage. Balloon tamponade is preferred as a first-line non-surgical option to stabilize patients and prevent the need for an emergency hysterectomy.

Question 160. What is the early sign of pregnancy on TVS?

A. G sac

B. Yolk sac

C. Cardiac activity

D. Fetal pole

Correct answer: A

The gestational sac (G sac) is the first sonographic evidence of pregnancy visible on Transvaginal Sonography (TVS). It typically appears between 4 and 5 weeks of gestation. Identifying the G sac is the earliest method to confirm the location of the pregnancy and establish gestational age. The yolk sac (Option B) appears slightly later, at approximately 5.5 weeks. Fetal pole and cardiac activity (Options C and D) are usually detectable between 5.5 and 6 weeks of gestation. Key indicators of a healthy intrauterine pregnancy include the "intradecidual sign" (an anechoic center with an echogenic rim) and the "double decidual sign" (two concentric rings around the sac). TVS is significantly more sensitive than transabdominal sonography for these early findings, allowing for the timely detection of ectopic pregnancies or early failure.

Question 161. Which vaccine is contraindicated in pregnancy?

A. Influenza

B. Varicella

C. Rabies

D. TDaP

Correct answer: B

Live attenuated vaccines, such as the Varicella vaccine, are strictly contraindicated during pregnancy. This is because live-virus vaccines pose a theoretical risk of infecting the fetus, potentially leading to congenital varicella syndrome or other complications. Other contraindicated live vaccines include Measles, Mumps, Rubella (MMR) and Yellow Fever. Inactivated influenza vaccine (Option A) is safe and highly recommended for pregnant women to prevent severe respiratory illness. The Rabies vaccine (Option C) is also safe in pregnancy; because rabies is 100% fatal, life-saving prevention is prioritized over theoretical risks. TDaP (Option D) is recommended during the third trimester of every pregnancy to provide passive immunity to the newborn against pertussis. Therefore, live vaccines like varicella should be administered at least one month before conception to ensure maternal and fetal safety.

Question 162. Which of the following vaccines is C/I in pregnancy?

A. Influenza

B. Varicella

C. Rabies

D. TDaP

Correct answer: B

Live attenuated vaccines, such as the Varicella vaccine, are strictly contraindicated during pregnancy due to the potential risk of fetal infection and congenital varicella syndrome. Other live vaccines to avoid include MMR and Yellow Fever. In contrast, inactivated influenza (Option A) is recommended to protect both mother and newborn. Rabies vaccine (Option C) is safe and mandatory for post-exposure prophylaxis as the disease is fatal. TDaP (Option D) is recommended during the third trimester to provide passive immunity to the infant against pertussis. Therefore, while killed vaccines and toxoids are generally safe, live viral vaccines like varicella pose a theoretical risk to fetal development and must be administered either before conception or postpartum.

Question 163. Approximately 75% of iatrogenic ureteric injuries occur during gynecological procedures. Among the different routes of hysterectomy, which approach carries the lowest risk of ureteric injury?

A. Laparoscopic

Examination Paper January 2025 Question

B. Abdominal

C. Vaginal

D. Robotic

Correct answer: C

The least risk of iatrogenic ureteric injury is associated with the vaginal hysterectomy route. Statistically, the risk follows the order: Vaginal < Abdominal < Laparoscopic. Laparoscopic hysterectomy (Option A) carries the highest risk due to the extensive manipulation, use of thermal energy, and limited visibility of the ureter during the procedure. Abdominal hysterectomy (Option B) has a moderate risk, often occurring during the ligation of the uterine arteries or infundibulopelvic ligaments. Robotic hysterectomy (Option D), despite being advanced, still poses a higher risk of ureteric injury compared to the vaginal approach. Vaginal hysterectomy is preferred for its faster recovery and lower incidence of urinary tract complications, provided the uterine size and pelvic pathology allow for this approach.

Question 164. A postmenopausal woman presents with irregular uterine bleeding, and endometrial biopsy reveals endometrial

hyperplasia
without atypia. What is the most appropriate
management?

A. OCP

B. Estradiol

C. LNG-IUS

D. Danazol

Correct answer: C

Endometrial hyperplasia without atypia is a benign condition with a low risk of progressing to cancer. In postmenopausal women with irregular bleeding, the first-line medical management is progestin therapy to reverse the hyperplasia. The Levonorgestrel Intrauterine System (LNG-IUS) is highly effective as it provides high local progestin concentrations to the endometrium. OCPs (Option A) and Estradiol (Option B) are contraindicated because estrogen stimulates further endometrial proliferation, worsening the condition and increasing malignancy risk. Danazol (Option D) is an androgenic agent with significant side effects and is far less effective than modern progestin options. If medical management fails or symptoms recur, a hysterectomy may be considered as the definitive surgical option.

Question 165. Which of the following CVS changes are not
seen in pregnancy?

A. Soft Systolic murmur

B. Diastolic murmur

C. S3

D. Loud S1 splitting

Correct answer: B

A diastolic murmur is never considered a normal physiological finding in pregnancy and always warrants further investigation for underlying heart disease. In contrast, several other cardiovascular adaptations are common: a soft systolic murmur (Option A) is frequently heard due to increased blood flow and decreased viscosity. A third heart sound (S3) (Option C) often occurs because of rapid ventricular filling. Exaggerated splitting of the first heart sound (S1) (Option D) is also typically observed. Additionally, the apex beat shifts laterally, and systemic vascular resistance decreases due to the smooth muscle-relaxing effects of progesterone. While systolic, S3, and mammary murmurs are physiologic results of the hyperdynamic state, a diastolic murmur is always pathologic.

Question 166. A 38-year-old woman presents with heavy
menstrual bleeding, pelvic discomfort, and
increased urinary frequency. On examination,
the uterus is irregularly enlarged. What is the

most likely diagnosis?

A. Endometriosis

B. Ovarian cyst

C. Leiomyoma

D. Polycystic ovary syndrome (PCOS)

Correct answer: C

The symptoms of heavy menstrual bleeding (menorrhagia), pelvic pressure, and urinary frequency combined with an irregularly enlarged uterus are diagnostic of uterine leiomyomas, or fibroids. These are common benign smooth muscle tumors originating from the myometrium. Endometriosis (Option A) causes severe pelvic pain and abnormal bleeding but typically does not enlarge the uterus unless adenomyosis is also present. An ovarian cyst (Option B) usually presents as a smooth adnexal mass rather than an irregularly enlarged uterine body. PCOS (Option D) involves hormonal disturbances like acne and hirsutism along with irregular cycles, but it does not cause uterine enlargement. Fibroids cause urinary symptoms by exerting direct pressure on the bladder. Diagnosis is confirmed by pelvic ultrasound, which characterizes the size and location of the fibroids. Therefore, leiomyoma is the most consistent clinical diagnosis.

Question 167. A 25-year-old woman presents with irregular menstrual cycles, acne, and excessive hair growth. Pelvic ultrasonography reveals multiple cysts in the ovaries. What is the most likely diagnosis?

A. Polycystic Ovary Syndrome (PCOS)

B. Endometriosis

C. Hypothyroidism

D. Ovarian hyperstimulation syndrome (OHSS)

Correct answer: A

The clinical presentation of irregular menstrual cycles, acne, and hirsutism (excess hair) combined with ultrasound evidence of multiple ovarian cysts is classic for Polycystic Ovary Syndrome (PCOS). PCOS is a multi-system endocrinopathy characterized by androgen excess and ovulatory dysfunction. Endometriosis (Option B) involves extra-uterine tissue growth and causes pain and infertility, but not androgenic features like acne. Hypothyroidism (Option C) can cause cycle irregularities and weight gain but is not associated with hyperandrogenism. OHSS (Option D) is an acute complication of fertility treatments presenting with sudden pain and massive ovarian enlargement rather than chronic irregular cycles. PCOS is often associated

with insulin resistance and acanthosis nigricans. Diagnosis usually follows the Rotterdam criteria, requiring two out of three: oligovulation, hyperandrogenism, or polycystic ovaries on imaging.

Question 168. A 25-year-old woman presents with a yellow-green, foul-smelling vaginal discharge associated with dysuria and dyspareunia, without itching. On speculum examination, the vulva and vaginal walls are inflamed. Which organism is the most likely causative agent?

A. Trichomonas vaginalis

B. Candida albicans

C. Gardnerella vaginalis

D. Neisseria gonorrhoeae

Correct answer: A

The presence of a yellowish-green, foul-smelling, often frothy discharge accompanied by inflammation of the vaginal walls and dyspareunia (painful intercourse) is highly characteristic of Trichomonas vaginalis. A specific sign often seen on speculum examination is the "strawberry cervix". Candida albicans (Option B) typically presents with a white, curdy (cottage cheese-like) discharge and intense itching, which is absent here. Gardnerella vaginalis (Option C) causes bacterial vaginosis, characterized by a thin, gray-white discharge with a "fishy" odor, but generally lacks significant vaginal inflammation or dyspareunia. Neisseria gonorrhoeae (Option D) primarily causes cervicitis but can overlap; however, the classic description of the discharge favors Trichomoniasis. Treatment involves metronidazole for both the patient and their partner to prevent recurrence. Thus, Trichomonas is the most likely causative agent.

Question 169. A 35-year-old woman presents for evaluation of infertility, having unsuccessfully attempted conception for more than one year. Which single test is considered the most reliable for assessing her ovarian reserve?

A. Follicle-stimulating hormone (FSH) on day 3

B. Estradiol on day 3

C. Anti-Müllerian hormone (AMH)

D. Serum inhibin levels on day 5

Correct answer: C

Anti-Müllerian Hormone (AMH) is considered the single best and most reliable blood test for assessing ovarian reserve. It is produced directly by the antral and pre-antral follicles; its levels

correlate closely with the remaining quantity of eggs. Unlike FSH (Option A) and Estradiol (Option B), which must be checked on Day 3 of the menstrual cycle and can fluctuate, AMH levels are stable throughout the cycle. Serum Inhibin B (Option D) also reflects the follicle pool but is more variable and less consistent than AMH. AMH provides a highly predictive functional assessment of how a patient might respond to controlled ovarian stimulation. Therefore, while FSH and Antral Follicle Count (AFC) are also used, AMH remains the gold standard for a single, cycle-independent measurement of reproductive potential.

Question 170. A 28-year-old pregnant woman at 33 weeks of gestation presents for a routine antenatal visit and reports reduced fetal movements for the past two days. She has a history of gestational diabetes, with an otherwise uncomplicated pregnancy. To assess fetal well-being, which antepartum fetal surveillance test should be performed initially?

A. Amniotic fluid index

B. Biophysical profile

C. Contraction Stress test

D. Non Stress test

Correct answer: D

In a patient reporting decreased fetal movements, the Non-Stress Test (NST) is the most appropriate initial screening tool for assessing fetal well-being. The NST is a quick, non-invasive method that monitors the fetal heart rate's response to its own movements. A "reactive" NST shows heart rate accelerations, indicating adequate fetal oxygenation and an intact nervous system. The Amniotic Fluid Index (Option A) assesses fluid volume but doesn't track real-time heart rate dynamics. The Biophysical Profile (Option B) is more comprehensive but time-consuming, making it a second-line test if the NST is non-reactive. The Contraction Stress Test (Option C) is more invasive and carries the risk of inducing labor, thus it is not an initial step. Therefore, given the acute concern for movement, the NST provides the fastest reliable assessment of immediate fetal status.

Question 171. During the active management of the third stage of labor, which intervention is primarily recommended to prevent postpartum hemorrhage resulting from uterine atony?

A. Immediate administration of 20 units of undiluted oxytocin intravenously
B. Oxytocin 10 units IM with crowning
C. Vigorous fundal massage combined with a uterotonic agent
D. Controlled cord traction with immediate removal of the placenta

Correct answer: C

Vigorous fundal massage is a key component of the active management of the third stage of labor (AMTSL), as it helps maintain uterine tone and prevent atony, the most common cause of postpartum hemorrhage (PPH). Combining massage with a uterotonic agent like oxytocin significantly enhances uterine contraction. Immediate administration of 20 units of undiluted oxytocin bolus (Option A) is strictly contraindicated because it can cause severe hypotension or cardiac arrhythmias. Oxytocin 10 units IM (Option B) is usually given after the delivery of the anterior shoulder, not specifically with crowning. Controlled cord traction (Option D) is used to deliver the placenta after signs of separation; attempting immediate removal before separation can cause uterine inversion. Thus, prophylactic massage and diluted oxytocin are the standard pillars for preventing excessive bleeding.

DERMATOLOGY

Question 172. A young woman experiences recurrent episodes of binge eating followed by self-induced vomiting. Which acid–base disturbance is she most likely to develop?

A. Respiratory acidosis
B. Respiratory alkalosis
C. Metabolic acidosis
D. Metabolic alkalosis

Correct answer: D

Recurrent self-induced vomiting, as seen in bulimia nervosa, results in a characteristic hypochloremic metabolic alkalosis. Vomiting leads to the loss of gastric hydrochloric acid (HCl), which contains hydrogen ions (H^+) and chloride ions (Cl^-). Loss of H^+ directly raises blood pH, producing metabolic alkalosis.

The associated loss of chloride further impairs renal bicarbonate excretion, allowing bicarbonate to accumulate and perpetuate the alkalosis. In addition, volume depletion from vomiting activates the renin–angiotensin–aldosterone system, leading to increased potassium and hydrogen ion loss in urine, which contributes to hypokalemia and sustains the alkalotic state.

Respiratory acidosis (Option A) and respiratory alkalosis (Option B) are caused by abnormalities in ventilation and are not primary consequences of vomiting. Metabolic acidosis (Option C) occurs in conditions such as diarrhea (bicarbonate loss) or diabetic ketoacidosis, which are physiologically opposite to the acid loss seen with vomiting.
Therefore, the most likely acid–base disturbance in this patient is metabolic alkalosis.

Question 173. Which deficiency is most likely in a patient with delayed wound healing and alopecia?

A. Zinc
B. Copper
C. Calcium
D. Vitamin D

Correct answer: A

The combination of delayed wound healing and alopecia (hair loss) is a hallmark clinical presentation of zinc deficiency. Zinc is a critical component of numerous metalloenzymes involved in DNA synthesis, cell division, and protein synthesis, all of which are essential for tissue repair and hair follicle maintenance. Severe deficiency can also lead to dermatitis, particularly acrodermatitis enteropathica. Regarding the distractors, copper deficiency (Option B) primarily manifests as microcytic anemia and neutropenia rather than alopecia. Calcium deficiency (Option C) is associated with tetany and skeletal issues, while Vitamin D deficiency (Option D) leads to rickets or osteomalacia. None of these typically cause the specific integumentary issues seen with low zinc. Thus, given the role of zinc in collagen synthesis and rapidly dividing skin cells, it is the most likely deficient nutrient.

Question 174. An elderly woman receiving chemotherapy for breast cancer develops marked hair loss. What is the most likely underlying cause of this condition?

A. Telogen Effluvium
B. Trichotillomania
C. Anagen Effluvium
D. Alopecia Areata

Correct answer: C

Chemotherapy-induced hair loss is typically classified as anagen effluvium. This occurs because chemotherapeutic agents target rapidly dividing cells, which include the hair matrix cells during their active growth (anagen) phase. The damage causes the hair shaft to narrow and eventually break or fall out suddenly and diffusely within weeks of starting treatment. Regarding the distractors, telogen effluvium (Option A) is a delayed shedding triggered by stress or illness that pushes hairs into the resting phase prematurely. Trichotillomania (Option B) is a behavioral

disorder involving compulsive hair pulling resulting in irregular patches. Alopecia areata (Option D) is an autoimmune condition causing well-defined circular patches of hair loss. Because chemotherapy specifically interrupts the mitotic activity of the hair bulb during the growth cycle, anagen effluvium is the correct pathological diagnosis.

Question 175. What is the most appropriate treatment for severe acne?

A. Topical Tretinoin

B. Isotretinoin

C. Steroids

D. Antibiotics

Correct answer: B

Oral isotretinoin is the most effective and appropriate treatment for severe, nodulocystic, or treatment-resistant acne. It is a systemic retinoid that addresses all four pathogenic factors of acne: it reduces sebum production, normalizes keratinization, inhibits bacterial colonization (P. acnes), and has anti-inflammatory properties. Regarding the other options, topical tretinoin (Option A) is suitable for mild comedonal acne but is insufficient for severe cases. Systemic steroids (Option C) are not used to treat acne and can actually induce "steroid acne" as a side effect. While antibiotics (Option D), such as doxycycline, are useful for moderate inflammatory acne, they do not provide the long-term remission required for severe, scarring disease. Given its potency and ability to prevent permanent scarring, isotretinoin is the gold standard for severe presentations, despite its required monitoring for side effects.

Question 176. A 60-year-old individual presents with an ulcer near the medial canthus of the eye. The lesion has rolled-out, beaded margins. Histopathological examination reveals nests of cells showing peripheral palisading. What is the most likely diagnosis?

A. Squamous Cell Carcinoma (SCC)

B. Nevus

C. Basal Cell Carcinoma (BCC)

D. Melanoma

Correct answer: C

The clinical description of an ulcer with rolled-out, beaded margins located at the medial canthus is a classic presentation of Basal Cell Carcinoma (BCC), the most common skin cancer. The diagnosis is confirmed by histopathology, which characteristically shows nesting of basaloid cells with a distinctive peripheral palisading pattern of nuclei. Regarding the distractors, Squamous Cell Carcinoma (Option A) typically presents with a scaly or keratinized appearance

and lacks the pearly, beaded margins. A nevus (Option B) is a benign lesion and would not show these malignant histological features. Melanoma (Option D) usually presents as an irregularly pigmented macule or nodule rather than a slow-growing ulcer with palisading cells. BCC is slow-growing and rarely metastasizes but can be locally invasive. Therefore, the combination of clinical margins and palisading histology

Question 177. A woman presents a few weeks after delivery with complaints of fever and bloody discharge from the nipple. On examination, a diffuse lump is palpated beneath the areola. What is the most likely diagnosis?

A. Galactocele

B. Lactational mastitis

C. Mondor disease

D. Fibrocystic disease

Correct answer: B

The patient’s presentation—fever, bloody or purulent nipple discharge, and a diffuse lump occurring a few weeks postpartum—is highly suggestive of lactational mastitis. This condition is usually caused by milk stasis followed by bacterial infection, most commonly by Staphylococcus aureus. Regarding the distractors, a galactocele (Option A) is a milk-retention cyst that presents as a painless, non-tender lump without fever or bloody discharge. Mondor disease (Option C) is a superficial thrombophlebitis of the breast veins, which presents as a palpable, cord-like structure rather than a diffuse inflammatory mass. Fibrocystic disease (Option D) causes cyclic pain and nodularity in response to menstruation and is not typically associated with the postpartum period or acute infection. Management of mastitis involves frequent breastfeeding and appropriate antibiotics to prevent the formation of a breast abscess.

Examination Paper January 2025 Question

Question 178. A patient with a known history of breast cancer has previously received Cobalt-60 radiotherapy. She now presents with respiratory distress, and chest imaging reveals haziness in the left lung. What is the most likely diagnosis?

A. Radiation Pneumonitis

B. Recurrence of Breast Cancer

C. Pulmonary Embolism

D. Infective Pneumonia

Correct answer: A

The patient’s history of Cobalt-60 radiotherapy for breast cancer, combined with subsequent respiratory distress and localized lung haziness, points to radiation pneumonitis. This condition typically occurs 4–12 weeks post-radiotherapy as an inflammatory response to lung tissue damage. Recurrence of breast cancer (Option B) usually presents as distinct lung nodules or pleural effusion rather than diffuse, localized haziness. Pulmonary embolism (Option C) causes sudden chest pain but typically leaves the lung fields clear on standard X-rays. Infective pneumonia (Option D) presents with a productive cough and fever, whereas radiation pneumonitis causes non-infective inflammation specifically within the irradiated field. CT imaging of radiation pneumonitis often shows hazy ground-glass opacities or consolidation. Treatment primarily involves corticosteroids like prednisone and supportive care.

Question 179. A 70-year-old patient presents with absolute constipation and abdominal distension, and an abdominal X-ray is provided. Based on these findings, what is the most likely diagnosis?

A. Caecal Volvulus

B. Sigmoid Volvulus

C. Intestinal Obstruction

D. Small Bowel Volvulus

Correct answer: B

The X-ray reveals a characteristic "coffee bean sign" or "omega loop," which is a massively dilated loop of the sigmoid colon with an inverted U-shape. This finding, combined with the clinical symptoms of absolute constipation and abdominal distension in an elderly patient, is highly diagnostic of sigmoid volvulus. Sigmoid volvulus occurs when the colon twists on its mesentery. Caecal Volvulus (Option A) typically shows a kidney-shaped distended caecum displaced toward the upper abdomen or midline. Intestinal Obstruction (Option C) is a generalized term that does not describe the specific loop seen here. Small Bowel Volvulus (Option D) presents with centrally located dilated loops of small intestine with multiple air-fluid levels rather than a single large colonic loop. Management for sigmoid volvulus often begins with endoscopic detorsion, while surgery is reserved for gangrenous or recurrent cases.

PSYCHIATRY

Question 180. A patient shows flat affect. What does it indicate?

A. Positive symptom

B. Negative symptom

C. Affect symptom

D. Cognitive symptom

Correct answer: B

In psychiatry, especially regarding schizophrenia, symptoms are categorized based on whether

they reflect an excess or a loss of normal function. "Flat affect" refers to a significant reduction or complete lack of emotional expression, where the patient exhibits minimal facial expressions, vocal inflection, or gestures. This is classified as a negative symptom because it represents a "loss" of normal emotional responsiveness. Positive symptoms (Option A) include distortions like delusions or hallucinations. Cognitive symptoms (Option D) involve impairments in memory, attention, and executive function. "Affect symptom" (Option C) is not a standard psychiatric classification. Other negative symptoms include avolition (lack of motivation) and alogia (poverty of speech). Therefore, flat affect is a hallmark negative symptom that often contributes to poor social functioning in schizophrenic patients.

Question 181. A young man with a known psychiatric illness becomes extremely aggressive after stopping his prescribed medication. He exhibits rapid, pressured speech, marked hyperactivity, and a decreased need for sleep. What is the most likely diagnosis?

A. Depression

B. Bipolar disorder - manic episode

C. Schizophrenia

D. Substance-induced mood disorder

Correct answer: B

The patient's clinical triad of rapid speech (pressured speech), decreased need for sleep, and hyperactivity/aggression is diagnostic of a manic episode. Manic episodes are core features of Bipolar I Disorder and are often triggered or exacerbated by the discontinuation of mood stabilizers or antipsychotic medications. Depression (Option A) presents with the opposite symptoms, such as low energy and slowed movement. While schizophrenia (Option C) can involve disorganized behavior, it is primarily defined by chronic delusions and hallucinations rather than the episodic energy surges seen here. A substance-induced mood disorder (Option D) could mimic these symptoms, but there is no history of drug use provided, and the worsening after stopping "prescribed medication" points toward a relapse of a primary mood disorder. Thus, a manic episode is the most probable diagnosis.

Question 182. A woman is brought to the hospital after an argument with her husband and complains that she is unable to speak. On examination, there are no neurological or physical abnormalities, and she appears unconcerned about her condition. What is the most likely diagnosis?

A. Malingering

B. La belle indifférence

C. Adaptation

D. Somatic symptom

Correct answer: B

The patient presents with mutism following an emotional conflict, yet her examinations are normal and she lacks distress regarding her symptoms. This specific lack of concern about a serious neurological deficit is known as "La belle indifférence," a hallmark of conversion disorder. It reflects an apparent indifference to symptoms like paralysis or mutism that have no underlying medical cause. Malingering (Option A) involves the intentional faking of symptoms for clear external gain, such as financial rewards, which is not evident here. Adaptation (Option C) refers to a normal psychological adjustment to stress, not the development of functional neurological deficits. Somatic symptom disorder (Option D) typically involves excessive anxiety and distress regarding physical symptoms, contrasting sharply with the indifference seen in this case.

****