INI-CET May 2022 Question Paper

159 recall questions with answers and explanations.

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

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Question 1. Which of the following vessels is not a branch of the facial artery within the facial region?

A. Lateral nasal artery

B. Mental artery

C. Superior labial artery

D. Inferior labial artery

Correct answer: B

Mental artery The facial artery, a branch of the external carotid artery, supplies the superficial structures of the face. Its major branches in the facial region include the inferior labial artery, the superior labial artery, and the lateral nasal artery. The inferior and superior labial arteries supply the lower and upper lips, respectively, while the lateral nasal artery supplies the skin of the ala and dorsum of the nose. The mental artery, conversely, is not a direct branch of the facial artery. It is the terminal branch of the inferior alveolar artery, which itself originates from the maxillary artery. The inferior alveolar artery travels through the mandibular canal and exits onto the face through the mental foramen as the mental artery, where it supplies the skin of the chin and the lower lip. Therefore, the mental artery has a different origin and is not considered a branch of the facial artery.

Question 2. Which of the following structures does not receive innervation from the superior gluteal nerve?

A. Gluteus medius

B. Gluteus minimus

C. Piriformis

D. Tensor fasciae latae

Correct answer: C

Piriformis The superior gluteal nerve originates from the sacral plexus, with contributions from spinal nerve roots L4, L5, and S1. It exits the pelvis through the greater sciatic foramen, superior to the piriformis muscle. Its primary function is to provide motor innervation to three key muscles in the gluteal region: the gluteus medius, the gluteus minimus, and the tensor fasciae latae. These muscles are essential for abduction and medial rotation of the thigh and

play a crucial role in stabilizing the pelvis during walking. Damage to this nerve leads to a characteristic Trendelenburg gait. The piriformis muscle, while located in the same region, receives its innervation from the nerve to piriformis, which arises directly from the ventral rami of S1 and S2. The piriformis functions as a lateral rotator of the thigh. Thus, it is the only muscle listed that is not supplied by the superior gluteal nerve.

Question 3. Which foramen in the skull is created by the union of three bones?

A. Foramen lacerum

B. Foramen magnum

C. Foramen rotundum

D. Foramen jugulare

Correct answer: A

Foramen lacerum The foramen lacerum is a unique, irregularly shaped foramen located in the base of the middle cranial fossa. It is distinguished by being formed at the junction of three different bones: the apex of the petrous part of the temporal bone, the basilar part of the occipital bone, and the body and greater wing of the sphenoid bone. In living individuals, the foramen is largely occluded by a layer of fibrocartilage, and no major structures pass vertically through its entire length. In contrast, the other foramina listed are formed differently. The foramen magnum (B) is a large opening situated entirely within the occipital bone. The foramen rotundum (C) is a passage located completely within the sphenoid bone. The foramen jugulare (D), or jugular foramen, is formed at the suture line between just two bones: the petrous part of the temporal bone and the occipital bone.

Question 4. Which muscles together form the pelvic diaphragm? 1. Iliococcygeus 2. Pubococcygeus 3. Obturator internus 4. Deep transverse perinei

A. 1,2

B. 1,2,3,4

C. 1,2,4

D. 1,4

Correct answer: A

1,2 The pelvic diaphragm is a broad, muscular sheet that forms the floor of the pelvic cavity, providing essential support for the abdominopelvic viscera. It is composed of the levator ani and coccygeus muscles. The levator ani muscle is the major component and is itself a composite of three separate muscles: puborectalis, pubococcygeus, and iliococcygeus. Therefore, both the iliococcygeus (1) and the pubococcygeus (2) are integral parts of the pelvic diaphragm. The obturator internus (3) is a muscle located on the lateral wall of the pelvis and functions primarily as a lateral rotator of the thigh; it is not part of the pelvic floor. The deep transverse perinei muscle (4) is a component of the urogenital diaphragm (perineal membrane), which is a separate structure situated inferior to the pelvic diaphragm. Hence, only

the iliococcygeus and pubococcygeus muscles from the given list contribute to the formation of the pelvic diaphragm.

Question 5. How might a fracture of the jugular canal manifest itself?

A. Loss of taste sensation in anterior 2/3rd of tongue

B. Loss of taste sensation in posterior 1/3rd of tongue

C. Loss of general sensation in anterior 2/3rd of tongue

D. Loss of motor sensation in anterior 2/3rd of tongue

Correct answer: B

Loss of taste sensation in posterior 1/3rd of tongue The jugular foramen is an aperture in the base of the skull through which three cranial nerves—the glossopharyngeal (CN IX), vagus (CN X), and accessory (CN XI)—and the internal jugular vein pass. A fracture involving this foramen can lead to damage to these nerves, resulting in a constellation of symptoms known as jugular foramen syndrome. The glossopharyngeal nerve (CN IX) provides both general and special (taste) sensation to the posterior one-third of the tongue. Therefore, a lesion of CN IX would result in the loss of taste in this specific region. The sensation of taste from the anterior two-thirds of the tongue (A) is carried by the chorda tympani, a branch of the facial nerve (CN VII). General sensation from the anterior two-thirds of the tongue (C) is provided by the lingual nerve, a branch of the trigeminal nerve (CN V3). Motor innervation to the tongue is via the hypoglossal nerve (CN XII).

Question 6. Which of the subsequent options are included in the limbic system? 1. Amygdala 2. Hippocampus 3. Thalamus

A. 1,2

B. 1,3

C. 2,3

D. 1,2,3

Correct answer: D

1,2,3 The limbic system is a set of interconnected brain structures that play a major role in emotion, memory, learning, and motivation. The amygdala (1) is a core component, critically involved in processing emotions like fear and aggression and in forming emotional memories. The hippocampus (2) is also central to the limbic system, being essential for the consolidation of information from short-term to long-term memory. While the entire thalamus is not considered part of the limbic system, certain thalamic nuclei, particularly the anterior nucleus and the dorsomedial nucleus, act as crucial relay stations within limbic circuits. For example, the anterior nucleus is a key part of the Papez circuit, receiving input from the mammillary bodies and projecting to the cingulate gyrus. Because of these integral functional connections, these parts of the thalamus (3) are considered components of the broader limbic system. Therefore, all three structures listed are included.

Question 7. In Meckel's diverticulum, which ectopic tissue is most frequently encountered?

A. Gastric and pancreatic

B. Colonic and pancreatic

C. Gastric and colonic

D. Thyroid and lung

Correct answer: A

Gastric and pancreatic Meckel's diverticulum, a remnant of the vitelline duct, is the most common congenital malformation of the gastrointestinal tract. While it is often asymptomatic, it can contain ectopic (heterotopic) mucosa in about 50% of cases, which can lead to complications. The most common type of ectopic tissue found is gastric mucosa. The acid secreted by this ectopic gastric tissue can cause ulceration, bleeding, or perforation of the adjacent ileal mucosa. The second most common type of ectopic tissue is pancreatic tissue. The presence of these two tissues accounts for the vast majority of ectopic findings in Meckel's diverticulum. Other tissues, such as colonic or duodenal mucosa, can be found but are much less frequent. Ectopic thyroid or lung tissue is not associated with this condition. Therefore, the combination of gastric and pancreatic tissue is the most frequently encountered, with gastric mucosa being the most clinically significant. PHYSIOLOGY

Question 8. When a patient aspirates while lying in the supine position, which lobe of the lung is most likely to be affected?

A. Lingula

B. Upper part of right inferior lobe

C. Right superior lobe

D. Right middle lobe

Correct answer: B

Upper part of right inferior lobe The location of aspirated material in the lungs is determined by gravity and the patient's position. In the supine position (lying on the back), the most dependent portions of the tracheobronchial tree are the superior segments of the lower lobes and the posterior segments of the upper lobes. Due to the anatomy of the main bronchi—the right being wider and more vertical than the left—aspiration occurs more frequently into the right lung. When an individual is supine, the aspirated contents are most likely to flow into the superior (apical) segment of the right inferior lobe, as it is the most dependent segment in this position. The lingula (A) is part of the left upper lobe. The right superior (C) and middle (D) lobes are located more anteriorly and are therefore less likely to be the primary sites of aspiration in a supine patient.

Question 9. What causes the detachment of myosin from actin filaments?

A. Attachment of ATP to the myosin head

B. Cessation of calcium release from the sarcoplasm

C. Conformational change in Troponin T

D. Dissociation of ADP and Pi

Correct answer: A

Attachment of ATP to the myosin head The process of muscle contraction is governed by the sliding filament theory, involving a cycle of attachment, pivoting, and detachment of myosin heads from actin filaments. After the "power stroke," during which the myosin head pulls the actin filament, the myosin remains firmly bound to the actin in a low-energy state, known as the rigor state. The detachment of the myosin head from the actin binding site is an active process that requires the binding of a new molecule of adenosine triphosphate (ATP) to the myosin head. This binding of ATP causes a conformational change in the myosin head, reducing its affinity for actin and leading to its release. Subsequently, ATP is hydrolyzed to ADP and inorganic phosphate (Pi), which "re-cocks" the myosin head into a high-energy position, ready for the next contraction cycle. The dissociation of ADP and Pi (D) initiates the power stroke, it does not cause detachment.

Question 10. Which proteins facilitate the transport of iron into enterocytes?

A. Transferrin

B. Ferroportin

C. Hepcidin

D. Divalent metal transporter - 1

Correct answer: D

Divalent metal transporter - 1 The absorption of dietary non-heme iron from the gut lumen into the intestinal epithelial cells (enterocytes) is a regulated process. First, dietary ferric iron (Fe^{3+}) is reduced to ferrous iron (Fe^{2+}) by an enzyme on the brush border called duodenal cytochrome B (Dcytb). The ferrous iron is then transported across the apical membrane of the enterocyte into the cell by the Divalent Metal Transporter 1 (DMT1). Therefore, DMT1 is the specific protein responsible for the initial uptake of iron into the enterocyte. Once inside the cell, iron can be stored as ferritin or transported out of the cell into the bloodstream. This exit across the basolateral membrane is mediated by another protein called ferroportin (B). Transferrin (A) is the protein that binds and transports iron within the bloodstream. Hepcidin (C) is a liver-produced hormone that regulates iron levels by downregulating ferroportin, thereby controlling iron's exit from the enterocyte.

Question 11. Vessel A has length L and diameter D, while vessel B has length 2L and diameter 2D. Assuming laminar flow in both cylinders, the flow through vessel B is how many times greater than that through vessel A?

A. 4 times

B. 8 times

C. 16 times

D. 32 times

Correct answer: B

8 times

Question 12. Which of the following is not a component of innate immunity?

A. Alpha defensins

B. B lymphocytes

C. Gamma Delta T lymphocytes

D. Lectin pathway

Correct answer: B

B lymphocytes The immune system consists of two main branches: innate and adaptive immunity. Innate immunity provides immediate, non-specific defense against pathogens. Its components include physical barriers, phagocytic cells (like macrophages), antimicrobial peptides such as alpha defensins (A), and the complement system, which can be activated via pathways like the lectin pathway (D). Gamma Delta T lymphocytes (C) are a type of T cell that possesses characteristics of both innate and adaptive immunity and are often considered part of the innate-like immune response. In stark contrast, B lymphocytes (B) are a cornerstone of adaptive immunity. Their primary function is to differentiate into plasma cells that produce highly specific antibodies against a particular antigen and to form memory cells that provide long-lasting immunity. This specificity and memory are the defining features of the adaptive immune system, not the innate system.

Question 13. Please arrange the following steps of ventricular action potential in the correct order. Click Here to Buy book on Amazon MEDINK INICET Examination Paper 176. (B) Proceed with emergency LSCS A palpable "bag of worms" on vaginal examination in a laboring patient is the classic description of a funic presentation or an impending umbilical cord prolapse with intact membranes. This is an obstetric emergency because if the membranes rupture, the cord will prolapse into the vagina, where it can be compressed by the fetal presenting part, cutting off blood flow and oxygen to the fetus. The definitive management is immediate delivery. Therefore, the most appropriate action is to prepare for and proceed with an emergency Lower Segment Cesarean Section (LSCS). While waiting for the C-section, measures should be taken to prevent cord compression, such as placing the mother in the knee-chest position and manually elevating the presenting part off the cord. Rupturing the membranes or starting oxytocin would be catastrophic as it would worsen the situation and lead to fetal compromise. Causes of non-immune hydrops fetalis are all except:

A. ABO incompatibility

B. Cardiac cause

C. Parvovirus infection

D. Chromosomal anomalies 177.

Correct answer: B

1, 2, 3, 4 Sirtuins are a highly conserved family of proteins with diverse biological functions. All four statements provided are correct. (4) Sirtuins are classified as Class III histone deacetylases (HDACs). Their deacetylase activity is unique in that it is dependent on nicotinamide adenine dinucleotide (NAD +) as a cofactor. (2) They are famously linked to longevity, as their activation, often through caloric restriction, has been shown to extend lifespan in various model organisms by regulating cellular stress responses and metabolism. (3) In mammals, there are seven distinct sirtuins, designated SIRT1 through SIRT7, which have different cellular localizations and target proteins. (1) Sirtuins, particularly SIRT1, are key regulators of metabolism. They can enhance insulin sensitivity in tissues such as liver, muscle, and adipose tissue by deacetylating key proteins in the insulin signaling pathway, thereby improving glucose homeostasis.

Question 14. What is the method for calculating cerebral perfusion pressure (CPP)?

A. Systolic blood pressure + Intracranial pressure

B. Systolic blood pressure - Intracranial pressure

C. Mean arterial pressure / Intracranial pressure

D. Mean arterial pressure - Intracranial pressure.

Correct answer: D

Mean arterial pressure - Intracranial pressure.

Question 15. What is the location of Macula densa located?

A. Junction of thick descending limb and DCT

B. Junction of thick descending limb and PCT

C. Junction of thick ascending limb and DCT

D. Junction of DCT and collecting duct

Correct answer: C

Junction of thick ascending limb and DCT The macula densa is a specialized plaque of modified epithelial cells in the wall of the nephron tubule. It is a key component of the juxtaglomerular apparatus (JGA), which is critical for regulating blood pressure and glomerular filtration rate (GFR). The precise anatomical location of the macula densa is at the very end of the thick ascending limb of the loop of Henle, at the transition point where it becomes the distal convoluted tubule (DCT). In this location, the tubule comes into direct physical contact with the afferent and efferent arterioles of its own glomerulus. These specialized cells function as chemoreceptors, sensing the concentration of sodium chloride in the tubular fluid. This information is used to provide feedback to the glomerulus (tubuloglomerular feedback) to

modulate GFR. This strategic placement allows for the autoregulation of individual nephron function. BIOCHEMISTRY

Question 16. Misincorporation of uracil into DNA is seen in deficiency of:

A. Vitamin B12

B. Folate

C. Vitamin B6

D. Vitamin E

Correct answer: B

Folate DNA synthesis requires a balanced supply of all four deoxyribonucleoside triphosphates (dNTPs): dATP, dGTP, dCTP, and dTTP. The synthesis of thymidine triphosphate (dTTP) involves the conversion of deoxyuridine monophosphate (dUMP) to deoxythymidine monophosphate (dTMP) by the enzyme thymidylate synthase. This critical methylation step requires N5,N10-methylenetetrahydrofolate as a methyl group donor. This cofactor is derived from folate (vitamin B9). In folate deficiency, the pool of this cofactor is depleted, which impairs the conversion of dUMP to dTMP. This leads to an imbalance in the dNTP pool, with an accumulation of dUTP relative to dTTP. DNA polymerase can then mistakenly incorporate dUTP (uracil) into the growing DNA strand instead of dTTP (thymine). This uracil misincorporation can lead to DNA strand breaks and mutations, contributing to the megaloblastic anemia seen in folate deficiency. Vitamin B12 deficiency can indirectly affect this by trapping folate in an unusable form, but folate is the direct cofactor.

Question 17. Glycogen phosphorylase is activated by:

A. Calcium

B. Glucose-6-phosphate

C. Insulin

D. Protein phosphatase

Correct answer: A

Calcium

Question 18. A baby is brought to the outpatient clinic with lethargy and feeding difficulties, and the urine has a characteristic burnt-sugar smell. This condition is linked to a deficiency of which enzyme?

A. Branched-chain ketoacid dehydrogenase

B. Branched-chain amino acid dehydrogenase

C. Branched-chain ketoacid oxidase

D. Branched-chain amino acid

Correct answer: A

Branched-chain ketoacid dehydrogenase The clinical scenario described—lethargy, feeding

problems, and urine that smells like burnt sugar or maple syrup in an infant—is the classic presentation of Maple Syrup Urine Disease (MSUD). MSUD is an autosomal recessive inborn error of metabolism involving the catabolism of the branched-chain amino acids (BCAAs): leucine, isoleucine, and valine. The underlying enzymatic defect is a deficiency of the branched-chain α -ketoacid dehydrogenase (BCKAD) complex. This enzyme is responsible for the oxidative decarboxylation of the α -ketoacids that are formed after the initial transamination of the BCAAs. The deficiency leads to the accumulation of both the BCAAs and their corresponding toxic α -ketoacids in the blood and urine. The characteristic odor is caused by the buildup of sotolone, a compound derived from the α -ketoacid of isoleucine.

Question 19. Which G protein-coupled receptor does phospholipase C act through?

A. Gs

B. Gi

C. Gq

D. Go

Correct answer: C

Gq G protein-coupled receptors (GPCRs) transduce extracellular signals into intracellular responses via heterotrimeric G proteins, which are classified based on their α -subunit. The G α subunit determines the downstream effector enzyme or ion channel. The Gq family of α -subunits (including Gq and G11) couples to the effector enzyme phospholipase C- β (PLC β). Upon activation by a ligand-bound GPCR, the Gq protein activates PLC β . PLC β then hydrolyzes the membrane phospholipid phosphatidylinositol 4,5-bisphosphate (PIP 2) into two important second messengers: inositol 1,4,5-trisphosphate (IP 3) and diacylglycerol (DAG). IP 3 triggers the release of calcium from intracellular stores, while DAG activates protein kinase C. In contrast, Gs proteins activate adenylyl cyclase, and Gi proteins inhibit adenylyl cyclase. Therefore, the phospholipase C pathway is the canonical signaling cascade for Gq-coupled receptors.

Question 20. What is the source of fructosamine formation through glycation?

A. Fructose

B. Albumin

C. Urea

D. Glycosaminoglycan

Correct answer: B

Albumin Fructosamine is a term used to describe glycated proteins, primarily glycated serum albumin. Glycation is a non-enzymatic reaction where a sugar molecule, such as glucose, binds to a protein. In the bloodstream, glucose reacts with the amino groups of proteins, particularly albumin, due to albumin's high concentration in the serum. This process forms a stable ketoamine product. The concentration of fructosamine in the blood reflects the average blood

glucose levels over the preceding 2 to 3 weeks, which corresponds to the half-life of albumin. This makes the fructosamine test a useful tool for monitoring short- to medium-term glycemic control in diabetic patients, especially when HbA1c measurements may be unreliable (e.g., in hemoglobinopathies). Therefore, albumin is the primary protein source for the clinical measurement of fructosamine.

Question 21. Refsum disease is due to:

A. Absence of alpha oxidation in peroxisomes

B. Absence of beta-oxidation in peroxisomes

C. Absence of alpha oxidation in lysosomes

D. Absence of beta-oxidation in lysosomes

Correct answer: A

Absence of alpha oxidation in peroxisomes Adult Refsum disease is an autosomal recessive disorder of lipid metabolism characterized by the accumulation of phytanic acid, a branched-chain fatty acid obtained from the diet. The methyl group on the beta-carbon of phytanic acid prevents it from being metabolized by the usual beta-oxidation pathway. Instead, it must first undergo alpha-oxidation. This process occurs exclusively in peroxisomes and involves the removal of the carboxyl carbon, shortening the chain by one carbon and allowing subsequent beta-oxidation to proceed. The key enzyme for the initial step is phytanoyl-CoA hydroxylase (PAHX). In Refsum disease, a deficiency in this enzyme (or other proteins involved in the pathway) leads to the absence of alpha-oxidation in peroxisomes. This causes phytanic acid to accumulate to toxic levels in plasma and tissues, leading to neurological symptoms, retinitis pigmentosa, and anosmia.

Question 22. An increased anion gap is seen in:

A. Respiratory acidosis

B. Respiratory alkalosis

C. Metabolic acidosis

D. Metabolic alkalosis

Correct answer: C

Metabolic acidosis The serum anion gap (AG) is a calculated value used to help determine the cause of metabolic acidosis. It is calculated as: AG = [Na +] - ([Cl -] + [HCO 3 -]). This value represents the concentration of unmeasured anions (e.g., albumin, phosphate, sulfate) in the plasma. Metabolic acidosis can be broadly divided into two types based on the anion gap. A high anion gap metabolic acidosis occurs when there is an increase in unmeasured anions due to the accumulation of acids other than hydrochloric acid. Examples include lactic acidosis, ketoacidosis, and ingestion of toxins like methanol or ethylene glycol. In these conditions, the added acid is buffered by bicarbonate (HCO 3), which decreases, and the unmeasured anion of the acid increases, thus widening the anion gap. In contrast, normal anion gap metabolic

acidosis involves a loss of bicarbonate that is compensated by an increase in chloride, keeping the gap normal.

Question 23. How does 2,3-BPG enhance the unloading of oxygen to body tissues?

A. Increasing ATP production

B. Binding to the beta subunit of Hb

C. Inhibiting taut structured

D. Decreasing ATP production

Correct answer: B

Binding to the beta subunit of Hb 2,3-Bisphosphoglycerate (2,3-BPG), also known as 2,3-diphosphoglycerate (DPG), is a negative allosteric regulator of hemoglobin's affinity for oxygen. It plays a crucial role in adapting oxygen delivery to metabolic needs. 2,3-BPG binds to a specific site in the central cavity of the deoxygenated (T, or taut) hemoglobin tetramer. This binding pocket is formed by positively charged amino acid residues on the two beta-globin chains. The binding of the negatively charged 2,3-BPG molecule stabilizes the T-state conformation of hemoglobin. This stabilization makes it energetically less favorable for hemoglobin to switch to the high-oxygen-affinity R (relaxed) state. As a result, the overall affinity of hemoglobin for oxygen is reduced, causing a rightward shift in the oxygen-hemoglobin dissociation curve. This shift promotes the unloading and release of oxygen from hemoglobin into the peripheral tissues where oxygen tension is lower.

Question 24. Which of the following is true about phenylketonuria (PKU)?

A. PKU is characterized by a mousy odor in the urine due to a decrease in tyrosine, dopamine, and norepinephrine levels.

B. PKU is characterized by a fruity odor in the urine due to a decrease in tyrosine, dopamine, and norepinephrine levels.

C. PKU is characterized by a mousy odor in the urine due to an increase in tyrosine, dopamine, and norepinephrine levels

D. PKU is characterized by a fruity odor in the urine due to an increase in tyrosine, dopamine, and norepinephrine levels.

Correct answer: A

PKU is characterized by a mousy odor in the urine due to a decrease in tyrosine, dopamine, and norepinephrine levels. Phenylketonuria (PKU) is an autosomal recessive disorder caused by a deficiency in the enzyme phenylalanine hydroxylase. This enzyme normally converts phenylalanine into tyrosine. In its absence, phenylalanine accumulates and is metabolized into phenylketones, including phenylacetate, which is excreted in the urine and sweat, imparting a characteristic "mousy" or "musty" odor. Because the conversion of phenylalanine to tyrosine is blocked, there is a resultant deficiency of tyrosine. Tyrosine is a crucial precursor for the synthesis of catecholamine neurotransmitters (dopamine, norepinephrine, epinephrine) and

melanin. Therefore, the biochemical consequences of untreated PKU include not only the mousy odor but also a decrease in the levels of tyrosine and its downstream products, which contributes to the severe intellectual disability and hypopigmentation associated with the disease. A fruity odor is more typical of ketoacidosis. PATHOLOGY

Question 25. A woman with chronic stable angina arrives at the emergency department with marked fatigue and exhaustion, and her blood sample appears brownish in color. What is the most likely diagnosis?

A. Carboxy-hemoglobinemia

B. Sideroblastic anemia

C. Methemoglobinemia

D. Sulfhemoglobinemia

Correct answer: C

Methemoglobinemia The combination of symptoms suggesting severe tissue hypoxia (fatigue, prostration, exacerbated angina) and the classic finding of "chocolate-brown" blood is pathognomonic for methemoglobinemia. In this condition, the iron atom in the heme group of hemoglobin is oxidized from the ferrous (Fe^{2+}) state to the ferric (Fe^{3+}) state. Hemoglobin in the ferric state, known as methemoglobin, is incapable of binding and transporting oxygen. This results in a functional anemia and impaired oxygen delivery to the tissues. Patients with angina may be taking nitrates, which are known oxidizing agents that can induce methemoglobinemia, providing a potential link in this case. Carboxyhemoglobinemia (A) from carbon monoxide poisoning causes a cherry-red blood color. Sideroblastic anemia (B) does not alter blood color in this way. Sulfhemoglobinemia (D) causes a greenish-black discoloration and is much rarer.

Question 26. Which of the following is not observed in anemia of chronic disease?

A. High serum hepcidin

B. Low serum ferritin

C. Chronic infection

D. Normal iron stores

Correct answer: B

Low serum ferritin Anemia of chronic disease (ACD), also called anemia of inflammation, develops in the setting of chronic inflammatory conditions, such as chronic infections (C), autoimmune diseases, or malignancies. The underlying pathophysiology involves inflammatory cytokines (like IL-6) stimulating the liver to produce high levels of hepcidin (A). Hepcidin is the master regulator of iron homeostasis; high levels block iron absorption from the gut and prevent the release of iron from macrophages of the reticuloendothelial system. This leads to iron being sequestered within the body's stores. Consequently, despite having normal or even increased total body iron stores (D), the iron is not available for erythropoiesis. Serum ferritin,

which reflects these iron stores and is also an acute phase reactant, is characteristically normal or elevated in ACD. A low serum ferritin is the defining feature of true iron deficiency anemia, not ACD.

Question 27. Neurosecretory bodies are seen in all the following except:

A. Medullary thyroid carcinoma

B. Pituitary adenoma

C. Paraganglioma

D. Adrenal cortical tumor

Correct answer: D

Adrenal cortical tumor Neurosecretory bodies, also known as dense-core granules, are membrane-bound vesicles containing hormones or neurotransmitters. They are the characteristic ultrastructural feature of neuroendocrine cells. Medullary thyroid carcinoma (A) is a neuroendocrine neoplasm arising from the calcitonin-producing C-cells of the thyroid. Pituitary adenomas (B) are tumors of the anterior pituitary gland, which is composed of various hormone-secreting neuroendocrine cells. Paragangliomas (C), including pheochromocytomas, are tumors arising from chromaffin cells, which are also of neuroendocrine origin. All of these tumors are expected to contain neurosecretory granules. In contrast, adrenal cortical tumors originate from the adrenal cortex, which has a mesodermal origin, not a neuroectodermal one. The adrenal cortex produces steroid hormones (e.g., cortisol, aldosterone). Steroids are synthesized and released on demand and are not stored in secretory granules. Therefore, adrenal cortical tumors lack these characteristic neurosecretory bodies.

Question 28. Which of the following statements about renal clear cell carcinoma is accurate? Choose the correct statements regarding this type of kidney cancer. 1. It is the most common primary renal malignancy. 2. It is associated with loss of the long arm of chromosome 3. 3. It is not associated with paraneoplastic syndrome. 4. The classic triad of flank pain, palpable mass, and hematuria is seen.

A. 1,2,4

B. 2,3

C. 1,3

D. 1,4

Correct answer: A

1,2,4 Clear cell renal cell carcinoma (ccRCC) is the most common primary renal malignancy, accounting for approximately 70–80% of all renal cell carcinomas in adults. Therefore, statement 1 is correct. It is strongly associated with abnormalities involving chromosome 3, particularly deletion of the short arm (3p), where the VHL (von Hippel–Lindau) tumor suppressor gene is located. Loss or mutation of the VHL gene leads to increased hypoxia-inducible factors (HIF), promoting angiogenesis and tumor growth. Hence, statement 2 is considered correct in

referring to chromosome 3 involvement. Statement 3 is incorrect because renal cell carcinoma is well known for producing paraneoplastic syndromes. These include polycythemia (due to erythropoietin production), hypercalcemia (due to PTH-related peptide), hypertension (due to renin), and Cushing syndrome (due to ACTH). Statement 4 is correct. The classic triad of flank pain, palpable abdominal mass, and hematuria is traditionally associated with RCC, although it is now less commonly seen due to earlier detection through imaging. Thus, statements 1, 2, and 4 are correct. page 377 INICET Examination Paper d. Type V Columella tympano- plasty (A) a-1, b-2, c-3, d-4 (B) a-2, b-4, c-3, d-1 (C) a-2, b-3, c-4, d-1 (D) a-1, b-3, c-4, d-2 AAns (C) a-2, b-3, c-4, d-1 Wullstein's classification describes different types of tympanoplasty based on the status of the ossicular chain and the method used to reconstruct sound conduction. 1. Type I tympanoplasty involves repair of the tympanic membrane with an intact ossicular chain. It is also called myringoplasty. In the given options, it corresponds to "Graft placed over the incus" (2). 2. Type III tympanoplasty is performed when the malleus and incus are absent but the stapes is present and mobile. The graft is placed directly over the stapes head, forming a columella effect, which corresponds to "Columella tympanoplasty" (3). 3. Type IV tympanoplasty is done when only the stapes footplate is mobile. The graft protects the round window and forms a sound-conducting mechanism known as cavum minor, corresponding to (4). 4. Type V tympanoplasty refers to fenestration tympanoplasty, in which a new window is created in the lateral semicircular canal when the stapes footplate is fixed, corresponding to (1). Thus, the correct matching is a-2, b-3, c-4, d-1, which is option (C).

Question 29. Which of the following conditions follows an X-linked dominant pattern of inheritance?

A. Rett syndrome

B. Duchenne muscular dystrophy

C. Huntington's disease

D. Tuberous sclerosis

Correct answer: A

Rett syndrome Rett syndrome is a progressive neurodevelopmental disorder that almost exclusively affects females. It is caused by mutations in the MECP2 gene, which is located on the X chromosome. The inheritance pattern is X-linked dominant. Because the affected gene is essential for normal development, the mutation is typically lethal in males (who have only one X chromosome) either in utero or shortly after birth. This explains the overwhelming prevalence in females, who survive due to mosaicism resulting from X-inactivation. In contrast, Duchenne muscular dystrophy (B) is X-linked recessive. Huntington's disease (C) and Tuberous sclerosis (D) are both autosomal dominant disorders. Therefore, Rett syndrome is the correct example of an X-linked dominant condition among the choices provided.

Question 30. "Cell in cell" appearance is seen in which of the following?

A. Necrosis

B. Apoptosis

C. Necroptosis

D. Entosis

Correct answer: D

Entosis The "cell-in-cell" structure describes the presence of one or more cells within the cytoplasm of another cell. While this can be seen when a phagocyte engulfs an apoptotic body (emperipolesis), the term is most specifically associated with entosis. Entosis is a distinct biological process where one living epithelial cell actively invades and is engulfed by a neighboring cell. The internalized "guest" cell remains alive for some time within a vacuole inside the "host" cell. The fate of the internalized cell can vary: it may be degraded, it may be released, or it may undergo cell division within the host. This phenomenon is distinct from phagocytosis of dead cells. Entosis is often observed in tumors and is thought to be a mechanism of cell competition. Necrosis (A) and necroptosis (C) are forms of lytic cell death and do not involve cell engulfment.

Question 31. Match each cancer in Column A with its corresponding gene in Column B. Column A Column B 1. Pleomorphic adenoma a. Rb 2. Burkitt lymphoma b. nMyc 3. Neuroblastoma c. cMyc 4. Retinoblastoma d. plag 1

A. 1-c, 2-b, 3-d, 4-a

B. 1-b, 2-c, 3-d, 4-a

C. 1-d, 2-c, 3-b, 4-a

D. 1-b, 2-d, 3-c, 4-a

Correct answer: C

1-d, 2-c, 3-b, 4-a This question tests the association between specific neoplasms and their characteristic genetic alterations. 1. Pleomorphic adenoma is a benign salivary gland tumor frequently associated with rearrangements of the PLAG1 gene. (1-d) 2. Burkitt lymphoma is a B-cell lymphoma defined by translocations involving the c-MYC oncogene, most commonly t(8;14). (2-c) 3. Neuroblastoma, a pediatric tumor of the sympathetic nervous system, is often characterized by amplification of the N-MYC (nMyc) oncogene, which is a powerful prognostic marker. (3-b) 4. Retinoblastoma is the archetypal cancer associated with the inactivation of a tumor suppressor gene, the retinoblastoma (Rb) gene. (4-a) Therefore, the correct combination of matches is 1-d, 2-c, 3-b, 4-a.

Question 32. Which feature is not seen in a pleomorphic adenoma?

A. Myoepithelial cells

B. Keratin pearls

C. Chondroid differentiation

D. Variable histological patterns

Correct answer: B

Keratin pearls Pleomorphic adenoma, also known as benign mixed tumor, is the most common tumor of the salivary glands. Its name reflects its hallmark feature: histologic pleomorphism or variability (D). It is composed of a mixture of epithelial (ductal) elements and myoepithelial cells (A) within a stroma that can be myxoid, hyaline, or chondroid (cartilage-like) (C). This mixture of tissue types is characteristic of the tumor. Keratin pearls, however, are not a typical feature of pleomorphic adenoma. They are well-defined, concentric lamellae of keratinized squamous cells and are the classic histological finding in well-differentiated squamous cell carcinoma. While foci of squamous metaplasia can occur in pleomorphic adenoma, the formation of true keratin pearls is highly unusual and would raise suspicion of malignant transformation.

Question 33. What is the oncotic pressure value of normal tissue?

A. 12 mmHg

B. 25 mmHg

C. 32 mmHg

D. 54 mmHg

Correct answer: B

25 mmHg The question is slightly ambiguous but most likely refers to the plasma colloid osmotic (oncotic) pressure, which is a major determinant of fluid movement between the capillaries and the interstitial tissue. This pressure is generated by plasma proteins, primarily albumin, which are too large to pass freely across the capillary wall. This protein concentration creates an osmotic force that pulls fluid from the interstitial space back into the capillaries. The normal value for plasma oncotic pressure is approximately 25 mmHg. The oncotic pressure of the interstitial fluid itself is much lower (around 8 mmHg) due to the low protein concentration in the tissue space. In the context of the Starling forces that govern tissue fluid balance, 25 mmHg is the standard value representing the inward-pulling force of the plasma. The other values are outside the normal physiological range for this parameter.

Question 34. Match each stain in Column A with its corresponding tissue in Column B. Column A Column B 1. Prussian blue stain a. Iron 2. PAS stain b. Glycogen 3. Congo red stain c. Amyloid 4. Fite-Faraco stain d. Leprosy

A. 1-d, 2-c, 3-b, 4-a

B. 1-c, 2-a, 3-d, 4-d

C. 1-a, 2-b, 3-d, 4-c

D. 1-a, 2-b, 3-c, 4-d

Correct answer: D

1-a, 2-b, 3-c, 4-d This question tests knowledge of specific histochemical stains. 2. Periodic acid-Schiff (PAS) stain is used to identify carbohydrates and carbohydrate-rich macromolecules like glycogen, mucins, and basement membranes, which stain magenta. (2-b) 3. Congo red is

the classic stain for amyloid deposits. Under polarized light, it produces a pathognomonic apple-green birefringence. (3-c) 4. Fite-Faraco stain is a modified acid-fast stain used specifically to identify Mycobacterium leprae, the causative agent of leprosy, in tissue sections. (4-d) Thus, the correct sequence of matches is 1-a, 2-b, 3-c, 4-d.

Question 35. Please match the following cells with their corresponding locations. 1. Kupffer cells a. Stomach 2. Parietal cells b. Liver 3. Dust cells c. Alveoli 4. Clara cells d. Bronchioles

A. 1-a, 2-b, 3-c, 4-d

B. 1-c, 2-d, 3-a, 4-b

C. 1-d, 2-a, 3-d, 4-c

D. 1-b, 2-a, 3-c, 4-d

Correct answer: D

1-b, 2-a, 3-c, 4-d This question requires identifying the location of specific specialized cells. 1. Kupffer cells are the resident macrophages of the liver, located within the lining of the liver sinusoids. (1-b) 2. Parietal cells (or oxyntic cells) are found in the gastric glands of the stomach fundus and body, where they secrete hydrochloric acid and intrinsic factor. (2-a) 3. Dust cells is the common term for alveolar macrophages, which are phagocytic cells found on the surface of the pulmonary alveoli. (3-c) 4. Clara cells (now known as Club cells) are non-ciliated secretory cells located in the epithelium of the small airways, specifically the terminal and respiratory bronchioles. (4-d) Therefore, the correct set of matches is 1-b, 2-a, 3-c, 4-d.

Question 36. Which of the following cytokines is not associated with the Th1 response?

A. IFN-gamma

B. IL-2

C. IL-12

D. IL-4

Correct answer: D

IL-4 CD4 + T helper (Th) cells differentiate into distinct subsets characterized by the cytokines they produce. The Th1 response is critical for cell-mediated immunity against intracellular pathogens. This response is driven by the cytokine IL-12 (C), which is produced by antigen-presenting cells. Once differentiated, Th1 cells produce a signature profile of cytokines, including IFN-gamma (A), which activates macrophages, and IL-2 (B), which is a T-cell growth factor that promotes clonal expansion. In contrast, IL-4 is the hallmark cytokine of the Th2 response. IL-4 promotes the differentiation of naive T cells toward the Th2 lineage and is central to humoral immunity, B-cell activation, class switching to IgE, and defense against extracellular parasites like helminths. Therefore, IL-4 is fundamentally associated with the Th2 pathway, not the Th1 pathway.

Question 37. A smoker presents with breathlessness and chest pain, and a lung mass that stains positive for chromogranin. What is the most likely diagnosis?

A. Adenocarcinoma

B. Squamous cell carcinoma

C. Mesothelioma

D. Small cell carcinoma

Correct answer: D

Small cell carcinoma The combination of a strong smoking history and a lung tumor is common, but the key diagnostic clue here is the positive chromogranin staining. Chromogranin A is an immunohistochemical marker for neuroendocrine differentiation. Its presence indicates that the tumor originates from neuroendocrine cells. Among primary lung cancers, the most common type with neuroendocrine features and a very strong association with smoking is Small Cell Lung Carcinoma (SCLC). SCLC is a high-grade neuroendocrine carcinoma that also typically stains positive for synaptophysin and CD56. Adenocarcinoma (A) and Squamous cell carcinoma (B) are non-small cell lung cancers and are negative for these neuroendocrine markers. Mesothelioma (C) is a tumor of the pleura, not typically associated with smoking, and has a different set of markers (e.g., calretinin, WT-1).

Question 38. Which microscopy method is used to produce high-contrast images of transparent, living bacteria?

A. Phase contrast microscopy

B. Dark field microscopy

C. Electron microscopy

D. Polarized microscopy

Correct answer: A

Phase contrast microscopy Unstained living cells, like bacteria, are mostly transparent and difficult to see with a standard bright-field microscope because they absorb very little light. Phase contrast microscopy is an optical microscopy technique specifically designed to enhance contrast in such transparent specimens without the need for staining, thus allowing observation of viable cells. It works by converting phase shifts in light passing through a transparent specimen to brightness changes in the image. These phase shifts are caused by differences in refractive index and thickness within the specimen. This technique is invaluable for studying the morphology and behavior of living microorganisms. Dark field microscopy (B) illuminates the specimen from the side, making it appear bright against a dark background. Electron microscopy (C) offers much higher magnification but requires fixed, non-living specimens. 71. Which test should be used to determine whether H. pylori treatment has been effective in a patient with peptic ulcer disease? (A) Endoscopy (B) IgG antibody study (C) Urea breath test (D) Urease test of biopsy AAns (C) Urea breath test After a course of eradication therapy for

Helicobacter pylori, it is crucial to perform a "test-of-cure" to confirm the infection is gone. The urea breath test (UBT) is the preferred non-invasive method for this purpose. The patient swallows a substance containing urea labeled with a carbon isotope (^{13}C or ^{14}C). If active H. pylori bacteria are present in the stomach, their potent urease enzyme will break down the urea, releasing labeled carbon dioxide (CO 2). This labeled CO 2 is absorbed into the blood and then exhaled, where it can be detected in a breath sample. Its presence indicates treatment failure. An IgG antibody study (B) is not useful for confirming eradication because antibodies can remain elevated for a long time after the infection is cleared. Endoscopy (A) with a biopsy for a urease test (D) is invasive and generally reserved for initial diagnosis or if there are other indications for follow-up endoscopy. 72. _____ is the regulation of genes whose expression depends on whether they are maternally or paternally inherited, which is controlled by DNA methylation. (A) Gonadal mosaicism (B) Genomic imprinting (C) Anticipation (D) Incomplete penetrance AAns (B) Genomic imprinting Genomic imprinting is an epigenetic process where certain genes are expressed in a parent-of-origin-specific manner. For an imprinted gene, only one of the two inherited alleles (either the maternal or the paternal) is expressed, while the other is silenced. This "imprint" is established in the germ cells of the parents and is maintained throughout the somatic cells of the offspring. The primary mechanism controlling this monoallelic expression is DNA methylation at specific DNA regions called imprinting control centers. This methylation pattern marks the allele for silencing. It is a form of gene regulation that does not involve changes to the DNA sequence itself. Disorders like Prader-Willi syndrome and Angelman syndrome are classic examples of diseases caused by defects in genomic imprinting. 73. Water leaking from a septic tank has collected in a container, creating a breeding site for mosquitoes. Based on the larval features shown in the image, which mosquito species is present? (A) Anopheles (B) Aedes (C) Mansonia (D) Culex AAns (A) Anopheles The larva shown in the image has distinguishing morphological features typical of Anopheles mosquito larvae. Anopheles larvae are characterized by the absence of a siphon (respiratory tube). Because they lack a siphon, they lie parallel to the water surface, obtaining oxygen directly through spiracles located on the posterior abdominal segment. In contrast: 1. Culex and Aedes larvae possess a long respiratory siphon, which causes them to hang at an angle from the water surface. 2. Mansonia larvae attach to aquatic plants to obtain oxygen and have a modified siphon. The image shows a larva without a prominent siphon and with a relatively straight body posture, consistent with Anopheles. Additionally, Anopheles larvae have palmate hairs on abdominal segments, which help them float horizontally. Since septic tank water can serve as a breeding site and the larval morphology matches these features, the mosquito species present is : (A) Anopheles. PSM 74. Which of the following statements accurately describes clinical trials? (A) New drug application is done after phase 4 (B) Phase 4 is also called post marketing surveillance (C) Phase 3 is always double blinded (D) Phase 2 is done on healthy individuals AAns (B) Phase 4 is also called post marketing surveillance Clinical drug

development proceeds through several phases. (D) Phase 1 studies assess safety and are typically done in a small number of healthy individuals, but Phase 2 trials are conducted in patients to assess efficacy, making statement D incorrect. Phase 3 trials are large-scale studies in patients to confirm efficacy and safety. A New Drug Application (NDA) is submitted for regulatory approval after successful completion of Phase 3. (B) Phase 4 studies are conducted after a drug has been approved and marketed. They are designed to monitor the drug's long-term safety and effectiveness in a broad population under real-world conditions. This is accurately called post-marketing surveillance. (A) The drug application is filed after Phase 3, not Phase 4. (C) While double-blinding is a common and robust design for Phase 3 trials, it is not always feasible or ethically appropriate, so it is not an absolute requirement. 75. According to the National Blindness and Visual Impairment Survey (2015–2019), what is the most common cause of moderate to severe visual impairment? (A) Refractive error (B) Untreated cataract (C) Glaucoma (D) Diabetic retinopathy AAns (B) Untreated cataract According to the National Blindness and Visual Impairment Survey (India, 2015–2019), untreated cataract was reported as the most common cause of moderate to severe visual impairment (MSVI) as well as blindness in adults aged 50 years and above. While uncorrected refractive error is a major contributor to visual impairment globally, the Indian national survey data specifically identified untreated cataract as the leading cause of MSVI in the surveyed population. Cataract causes progressive clouding of the lens, leading to gradual reduction in visual acuity. Because many affected individuals do not undergo timely cataract surgery, it remains the most significant cause. Refractive errors were reported as the second most common cause of visual impairment. Glaucoma and diabetic retinopathy contribute smaller proportions compared to cataract. Thus, based on the National Blindness and Visual Impairment Survey (2015–2019), the most common cause of moderate to severe visual impairment is : (B) Untreated cataract 76. Five-year-old Ram and three-year-old Sham are the sons of Rama Devi. Sham developed a rash, which she dismissed as an allergy. Ten days later, Ram also developed a rash accompanied by fever, prompting her to take him to the primary health centre (PHC). The PHC staff suspected measles. Which of the following statements are correct?: 1. Ram is an index case. 2. Sham is a primary case. 3. Ram got the infection from Sham. 4. Ram could've gotten post-exposure prophylaxis if the mother had brought him to the hospital when Sham got the rash. (A) 1, 2, 3 and 4 are correct (B) 1 only is correct (C) 1 and 4 are correct (D) 1 and 3 are correct AAns (A) 1, 2, 3 and 4 are correct This scenario illustrates several key epidemiological concepts. 1. Index case: The first case to be brought to the attention of the health system. Since Ram was taken to the PHC, he is the index case. (Correct) 2. Primary case: The first person to introduce the disease into a group (in this case, the family). Sham developed the rash first, so he is the primary case. (Correct) 3. Secondary case: Ram developed symptoms 10 days after Sham, which is consistent with the incubation period of measles. He likely contracted the infection from his brother, making him a secondary case. (Correct) 4. Post-exposure prophylaxis (PEP):

For measles, PEP with either the MMR vaccine (within 72 hours of exposure) or immunoglobulin (within 6 days of exposure) can prevent or modify the illness in susceptible contacts. Had Ram been seen when Sham first became ill, he would have been eligible for PEP. (Correct) Therefore, all four statements are accurate descriptions of the situation. 77. While checking a patient’s blood pressure at a primary health centre, the sphygmomanometer fell and broke, spilling mercury on the floor. What steps should be taken to clean up the mercury safely? (A) Use a card to gather the mercury onto a sheet of paper and place it in a sealed jar. (B) Sweep up the mercury with a broom and dispose of it outside. (C) Sweep up the mercury and flush it down the toilet. page 375 INICET Examination Paper (D) Pick up the mercury by hand and wash hands with water afterward. AAns (A) Use a card to gather the mercury onto a sheet of paper and place it in a sealed jar. Elemental mercury is a hazardous substance; its vapor is toxic when inhaled, and it can be absorbed through the skin. Spills must be handled carefully to minimize exposure and contamination. The correct procedure for a small spill is to consolidate the mercury beads without breaking them up further. Using a stiff piece of paper or cardboard to gently roll the beads together and then onto another sheet of paper is the recommended method. The collected mercury should then be placed into an airtight, unbreakable container (like a sealed glass jar), labeled as hazardous waste, and disposed of according to local guidelines. Using a broom (B) or vacuum cleaner will disperse the mercury into smaller, more volatile droplets. Flushing it (C) contaminates the water supply, and direct hand contact (D) is dangerous. 78. Which field of statistics is involved in describing the internal data collection? (A) Theoretical statistics (B) Descriptive statistics (C) Analytical statistics (D) Inferential statistics AAns (B) Descriptive statistics The field of statistics is broadly categorized into two main branches. Descriptive statistics is the branch that deals with methods of summarizing, organizing, and presenting data in a meaningful way. It aims to describe the basic features of a dataset. This includes calculating measures like mean, median, and mode, creating frequency distributions, and generating visual representations such as histograms and bar charts. The phrase "describing the internal data collection" aligns perfectly with the function of descriptive statistics. In contrast, inferential statistics (D) involves using data from a sample to make conclusions or predictions about a larger population from which the sample was drawn. It involves hypothesis testing and estimation. 79. For which airborne infections is it essential to place patients in a separate isolation room? (A) Measles (B) Rabies (C) Nipah (D) Aseptic meningitis AAns (A) Measles Airborne precautions, including isolation in a special negative-pressure room (Airborne Infection Isolation Room or AIIR), are required for pathogens that are transmitted via small aerosolized droplet nuclei (<5 microns). These tiny particles can remain suspended in the air for extended periods and travel long distances. Measles is a highly contagious virus that spreads through the airborne route, making strict airborne isolation essential to prevent transmission in a healthcare setting. Rabies (B) is transmitted via direct contact with the saliva of an infected animal (e.g., a bite). Nipah virus (C) spreads through

contact with infected animals or through large droplet transmission between humans. Aseptic meningitis (D) is most often viral and typically requires standard or droplet precautions, not airborne. 80. Which of the following statements is false regarding rabies immunoglobulin? (A) It is exclusively given only in the deltoid (B) The dose is 20 IU/kg (C) Administer it immediately after exposure (D) If human RIG is unavailable, equine is preferred AAns (A) It is exclusively given only in the deltoid This statement is false. The most critical principle of rabies immunoglobulin (RIG) administration is to infiltrate as much of the dose as is anatomically feasible directly into and around the wound(s). This is done to neutralize the virus at the site of inoculation. Any remaining RIG that cannot be infiltrated around the wound should be given as a deep intramuscular injection at a site distant from the rabies vaccine administration site (e.g., the gluteal area). It is not given exclusively in the deltoid. The other statements are true: the dose for human RIG (HRIG) is 20 IU/kg (B), it should be given as soon as possible after exposure (C), and equine RIG (ERIG) is the alternative if HRIG is not available (D). 81. If a point-of-care test with 98% sensitivity gives a negative result in a patient, what does this imply? (A) The patient would need another point-of- care diagnostic test for the same clinical condition (B) The prevalence of the disease is 2% (C) The patient is less likely to have the disease (D) The patient has been wrongly ruled out due to false negatives AAns (C) The patient is less likely to have the disease Sensitivity refers to a test's ability to correctly identify individuals who have a specific disease (the true positive rate). A test with 98% sensitivity will correctly detect the disease in 98 out of 100 people who are truly infected, with only a 2% false-negative rate. Because of this high sensitivity, a negative result carries significant weight. There is a very high probability that a person who tests negative with such a test does not have the disease. This concept is often summarized by the mnemonic "SnNout" (a highly Sensitive test, when Negative, helps to rule out the disease). Therefore, a negative result from this test indicates that the patient is very unlikely to have the condition.

Question 39. What is the classification of dorzolamide?

A. Topically applied sulfonamide antibacterial

B. Topical ocular carbonic anhydrase inhibitor

C. Second-generation sulfonylurea

D. Opioid receptor agonist

Correct answer: B

Topical ocular carbonic anhydrase inhibitor Dorzolamide is a medication used to treat glaucoma and ocular hypertension by lowering intraocular pressure. Its mechanism of action is the inhibition of the carbonic anhydrase enzyme within the ciliary body of the eye. This inhibition reduces the rate of aqueous humor production, thereby lowering the pressure inside the eye. It is formulated as an ophthalmic solution (eye drops) for direct topical application. Chemically, dorzolamide is a sulfonamide, but it lacks antibacterial activity (A). It is distinct from

sulfonylureas (C), which are oral hypoglycemic agents used for type 2 diabetes, and it has no relation to opioid receptors (D). Therefore, its precise classification is a topical ocular carbonic anhydrase inhibitor.

Question 40. Which of the following is not classified as an immune checkpoint inhibitor?

A. Nivolumab

B. Pembrolizumab

C. Atezolizumab

D. Cetuximab

Correct answer: D

Cetuximab Immune checkpoint inhibitors are a class of cancer immunotherapy drugs that block proteins that would otherwise stop the immune system from attacking cancer cells. Nivolumab and Pembrolizumab are monoclonal antibodies that target the PD-1 (programmed cell death protein 1) receptor on T-cells. Atezolizumab is a monoclonal antibody that targets the ligand, PD-L1. All three of these drugs function by disrupting the PD-1/PD-L1 inhibitory checkpoint, thereby unleashing an anti-tumor immune response. In contrast, Cetuximab is a monoclonal antibody that targets the Epidermal Growth Factor Receptor (EGFR). It is a form of targeted therapy that works by inhibiting the signaling pathways that drive tumor cell growth and proliferation. While it is an important cancer drug, its mechanism is unrelated to the modulation of immune system checkpoints.

Question 41. Toxicity from which drug leads to the formation of NAPQI as a metabolic by-product?

A. Aspirin

B. Paracetamol

C. Diclofenac

D. Ketorolac

Correct answer: B

Paracetamol In cases of paracetamol (acetaminophen) overdose, the normal metabolic pathways of glucuronidation and sulfation in the liver become saturated. The excess drug is then metabolized by the cytochrome P450 enzyme system (specifically CYP2E1). This alternative pathway produces a highly reactive and toxic metabolite called N-acetyl-p-benzoquinone imine (NAPQI). Under normal conditions, small amounts of NAPQI are quickly detoxified by conjugation with glutathione. However, in an overdose, the liver's glutathione stores are depleted. The unbound NAPQI then accumulates and covalently binds to critical cellular macromolecules, leading to oxidative damage and severe hepatocellular necrosis. The toxicity of NSAIDs like aspirin, diclofenac, and ketorolac is mediated by different mechanisms, primarily related to the inhibition of cyclooxygenase enzymes, and does not

involve the formation of NAPQI.

Question 42. What is the half-life of letrozole?

A. 46 hours

B. 70 hours

C. 90 hours

D. 120 hours

Correct answer: A

46 hours Letrozole is a potent, non-steroidal aromatase inhibitor used for the treatment of hormone-receptor-positive breast cancer in postmenopausal women. It blocks the conversion of androgens to estrogens. Pharmacokinetically, letrozole is well-absorbed orally and has a relatively long terminal elimination half-life. The established average half-life of letrozole is approximately 2 days, or 48 hours. This allows for effective suppression of estrogen levels with a convenient once-daily dosing regimen. Among the options provided, 46 hours is the value that most closely approximates the known pharmacokinetic profile of the drug. The other options represent significantly longer half-lives that are not characteristic of letrozole.

Question 43. For which drug is urinary alkalinization most useful in treating toxicity?

A. Beta-blockers

B. Aspirin

C. Acetaminophen

D. Calcium channel blockers

Correct answer: B

Aspirin Urinary alkalinization is a method of enhanced elimination used for overdoses of certain drugs, particularly weak acids. The principle is "ion trapping." Aspirin (acetylsalicylic acid) is a weak acid (pKa ≈ 3.5). By administering intravenous sodium bicarbonate, the pH of the urine is raised (made more alkaline). In an alkaline environment, the weak acid (HA) is driven to dissociate into its ionized form ($H^+ + A^-$). This charged, ionized form (salicylate anion) is less lipid-soluble and cannot easily diffuse back across the renal tubular epithelium into the blood. It is thus "trapped" within the tubule and excreted in the urine, significantly increasing the drug's clearance from the body. This method is not effective for beta-blockers, acetaminophen, or calcium channel blockers, whose elimination pathways are not significantly affected by urinary pH. Acetaminophen toxicity is treated with N-acetylcysteine.

Question 44. Match each teratogenic drug in Column A with its associated teratogenic effect in Column B. Column A Column B Lithium a. Phocomelia Chloramphenicol b. Depressed nasal bridge Warfarin c. Gray baby syndrome Thalidomide d. Ebstein anomaly

A. 1-a, 2-b, 3-c, 4-d

B. 1-d, 2-c, 3-b, 4-a

C. 1-d, 2-a, 3-d, 4-c

D. 1-c, 2-d, 3-a, 4-b

Correct answer: B

1-d, 2-c, 3-b, 4-a This question assesses knowledge of specific drug-induced birth defects. Lithium, a mood stabilizer used during pregnancy, has been associated with an increased risk of Ebstein anomaly (d), a congenital heart malformation affecting the tricuspid valve. Chloramphenicol, an antibiotic, when given to neonates (especially premature infants), can cause Gray baby syndrome (c). This is due to the infant's immature liver being unable to metabolize the drug, leading to toxicity and cardiovascular collapse. Warfarin, an oral anticoagulant, is a known teratogen that can cause fetal warfarin syndrome, characterized by skeletal abnormalities including nasal hypoplasia (depressed nasal bridge) (b) and stippled epiphyses. Thalidomide is a notorious teratogen that, when taken during early pregnancy, causes severe limb-reduction defects, most characteristically phocomelia (a), where the hands and feet are attached to abbreviated limbs.

Question 45. Match each diuretic in Column A with its corresponding site of action in Column B. Column A Column B A. Acetazolamide 1. Thick ascending loop of Henle B. Torsemide 2. Collecting duct C. Chlorthalidone 3. Distal convoluted tubule D. Vasopressin 4. Proximal convolut- ed tubule

A. A-2, B-3, C-1, D-4

B. A-3, B-4, C-2, D-1

C. A-1, B-2, C-4, D-3

D. A-4, B-1, C-3, D-2

Correct answer: D

A-4, B-1, C-3, D-2 The correct matching is A-4, B-1, C-3, D-2 based on renal physiology. Acetazolamide is a carbonic anhydrase inhibitor. Carbonic anhydrase plays a major role in bicarbonate reabsorption in the proximal convoluted tubule (PCT). By inhibiting this enzyme, acetazolamide reduces sodium and bicarbonate reabsorption in the PCT. Therefore, it acts at site 4 (proximal convoluted tubule). Torsemide is a loop diuretic. Loop diuretics inhibit the Na^+–K^+–$2Cl^-$ cotransporter located in the thick ascending limb of the loop of Henle. This segment is responsible for significant sodium reabsorption and for generating the medullary concentration gradient. Thus, torsemide acts at site 1 (thick ascending loop of Henle). Chlorthalidone is a thiazide-like diuretic. Thiazides block the Na^+–Cl^- cotransporter in the distal convoluted tubule (DCT), increasing sodium and water excretion. Therefore, it acts at site 3 (distal convoluted tubule). Vasopressin (ADH) acts on V_2 receptors in the collecting duct, increasing water reabsorption through insertion of aquaporin-2 channels. Hence, it acts at site 2 (collecting duct). Thus, the correct matching is A-4, B-1, C-3, D-2.

Question 46. Which statements regarding the medications used to treat tuberculosis are accurate? 1. Isoniazid inhibits mycolic acid synthesis 2. Pyrazinamide is an enzyme inducer 3. Rifampicin is used only in the treatment of tuberculosis 4. Bedaquiline inhibits ATP synthase

A. 1,2,3,4

B. 2,3

C. 1,3

D. 1,4

Correct answer: D

1,4 Let's analyze the statements about antitubercular drugs. 1. Correct. Isoniazid is a primary drug for TB, and its main bactericidal action is the inhibition of the synthesis of mycolic acid, a unique and essential component of the mycobacterial cell wall. 2. Incorrect. The most potent enzyme inducer among first-line TB drugs is rifampicin, not pyrazinamide. Rifampicin significantly induces cytochrome P450 enzymes, leading to numerous drug interactions. 3. Incorrect. Rifampicin is a broad-spectrum antibiotic. While it is a cornerstone of TB therapy, it is also used in the treatment of other conditions like leprosy and for prophylaxis against Neisseria meningitidis and Haemophilus influenzae. 4. Correct. Bedaquiline, a drug used for multidrug-resistant tuberculosis (MDR-TB), has a novel mechanism. It specifically targets and inhibits the proton pump of the mycobacterial ATP synthase enzyme, which disrupts the pathogen's ability to generate energy. FORENSIC MEDICINE

Question 47. In a murder trial where Sagar is accused of killing Mohan, Shikhar states in court that he saw Sagar holding a knife in the park. What is the legal term for Shikhar’s statement?

A. Direct evidence

B. Indirect evidence

C. Hostile evidence

D. Hearsay evidence

Correct answer: A

Direct evidence Direct evidence is evidence based on a witness’s personal knowledge or observation of a fact in issue, without requiring inference. If a person testifies in court about what they personally saw, heard, or experienced, that testimony is considered direct evidence. In this case, Shikhar states that he saw Sagar holding a knife in the park. Since Shikhar is describing what he personally observed with his own senses, his statement qualifies as direct (ocular) evidence. Indirect evidence (also called circumstantial evidence) requires the court to draw an inference. For example, if Shikhar had testified that he saw Sagar running away from the park after hearing screams, that would be circumstantial because the court would need to infer involvement in the crime. Hostile evidence refers to testimony given by a witness who

turns against the party that called them. Hearsay evidence is a statement made outside court and repeated by someone else in court. Thus, Shikhar’s testimony is direct evidence.

Question 48. What clinical features are typically seen in cases of chronic arsenic poisoning? 1. Raindrop pigmentation 2. Peripheral neuritis 3. Mees line 4. Luminous vomit

A. 1,2,3 are correct

B. 2,3 are correct

C. 1,4 are correct

D. Only 1 is correct

Correct answer: A

1,2,3 are correct Chronic arsenic poisoning (arsenicosis) affects multiple organ systems and has several classic manifestations. 1. Raindrop pigmentation: A characteristic skin finding where small, dark spots of hyperpigmentation are interspersed with areas of normal skin or hypopigmentation, particularly on the trunk. 2. Peripheral neuritis: A painful, symmetrical, sensory-motor peripheral neuropathy is a common neurological complication of chronic exposure. 3. Mees' lines: Transverse white bands that appear across the fingernails (and toenails) weeks after a significant systemic insult, including poisoning by arsenic and other heavy metals. 4. Luminous vomit: This is a pathognomonic sign of acute phosphorus poisoning, where the vomitus glows in the dark due to the oxidation of elemental phosphorus. It is not associated with arsenic poisoning. Therefore, the first three manifestations are correct for chronic arsenic poisoning.

Question 49. Match the following teeth with their typical ages of eruption. Click Here to Buy book on Amazon MEDINK Tooth Age of eruption a. Canine 6-7 years b. Lateral incisor 8-9 years c. First molar 11-12 years d. Third molar 17-25 years

A. a-1, b-3, c-2, d-4

B. a-3, b-4, c-1, d-2

C. a-3, b-2, c-1, d-4

D. a-2, b-3, c-4, d-1

Correct answer: C

a-3, b-2, c-1, d-4 The eruption timeline for permanent teeth follows a predictable sequence. The first molar (c) is one of the earliest permanent teeth, typically erupting around 6-7 years (1). The lateral incisor (b) follows the central incisor, usually erupting between 8-9 years (2). The canine (a) erupts later, after the incisors and first premolars, typically between 11-12 years (3). The third molar (d), or wisdom tooth, is the last to erupt, with a wide age range from 17-25 years (4), and it may sometimes fail to erupt at all (impaction). Based on this time line, the correct matching is a-3, b-2, c-1, d-4.

Question 50. What type of strangulation method is the Spanish windlass?

A. Bansdola

B. Garrotting

C. Mugging

D. Throttling

Correct answer: B

Garrotting The Spanish windlass is a specific technique of garrotting. Garrotting is a form of ligature strangulation where a device is used to twist and tighten a cord or wire placed around the neck. In the Spanish windlass method, a stick or rod is inserted into a loop of the ligature and then rotated. This mechanical advantage allows for immense constricting force to be applied rapidly and with little effort, leading to asphyxiation. Throttling (D) refers to manual strangulation (using hands). Mugging (C) typically involves a chokehold from behind with the forearm. Bansdola (A) is another form of ligature strangulation where the ligature is tightened by pulling on its ends while pressing a foot against the neck for leverage. MICROBIOLOGY

Question 51. Which technique is used to identify interactions between DNA and proteins?

A. DNA footprinting

B. DNA fingerprinting

C. ELISA

D. Northern blotting

Correct answer: A

DNA footprinting DNA footprinting is a technique used to determine the exact DNA sequence to which a specific protein (like a transcription factor) binds. The principle is that a protein bound to DNA will protect the DNA sequence it is covering from cleavage by a nuclease (like DNase I) or a chemical agent. When the DNA fragments are then separated by gel electrophoresis, the protected region appears as a gap, or "footprint," in the otherwise continuous ladder of fragments. This reveals the precise binding site of the protein. DNA fingerprinting (B) is used to identify individuals based on their unique DNA profiles. ELISA (C) is an immunological assay used to detect and quantify proteins, antibodies, or antigens. Northern blotting (D) is a technique used to detect specific RNA sequences.

Question 52. What is the method employed for banding dicentric chromosomes?

A. G banding

B. C banding

C. NOR

D. R banding

Correct answer: B

C banding A dicentric chromosome is an abnormal chromosome that has two centromeres.

C-banding is the specific cytogenetic staining technique used to visualize centromeric regions. This method selectively stains constitutive heterochromatin, which is tightly packed DNA rich in repetitive sequences and is primarily located at and around the centromeres. The procedure involves harsh chemical treatments (acid and alkali) followed by Giemsa staining, which results in the prominent staining of these centromeric regions. This makes C-banding the ideal method to definitively identify the number and location of centromeres on a chromosome, and thus to confirm if a chromosome is dicentric. G-banding (A) and R-banding (D) stain bands along the chromosome arms for general identification. NOR staining (C) highlights nucleolar organizing regions.

Question 53. A 40-year-old man has had fever for 15 days and altered sensorium for one day, and is diagnosed with Plasmodium falciparum malaria. Which of the following is not a possible complication of this condition?

A. Blood glucose <40 mg/dL

B. Arterial pH >7.2

C. Serum creatinine - 5.2 mg/dL

D. Unarousable coma

Correct answer: B

Arterial pH >7.2 The patient's presentation with altered sensorium indicates severe malaria caused by P. falciparum. The WHO defines severe malaria by the presence of complications. Let's analyze the options based on these criteria: (A) Hypoglycemia (blood glucose <40 mg/dL) is a defining complication of severe malaria. (C) Acute kidney injury (serum creatinine >3 mg/dL) is also a criterion for severe malaria. A value of 5.2 mg/dL clearly meets this. (D) Cerebral malaria, defined by an unarousable coma, is a hallmark of severe disease. (B) Metabolic acidosis is a major complication, defined by a plasma bicarbonate <15 mmol/L or an arterial pH <7.35. An arterial pH > 7.2 is not in itself a complication; in fact, it is closer to the normal range than the severely low pH that would define this complication. A patient with severe metabolic acidosis would have a pH well below this level. Therefore, having a pH > 7.2 is NOT a defining complication.

Question 54. Which of the following agents can be used as a disinfectant rather than a sanitizer?

A. Hydrogen peroxide

B. Penicillin

C. Methyl paraben

D. Bleaching powder

Correct answer: D

Bleaching powder A disinfectant is a chemical that destroys or irreversibly inactivates most pathogenic microorganisms on inanimate surfaces. A sanitizer reduces microbial contamination

to a safe level but does not eliminate all pathogens. Bleaching powder (calcium hypochlorite) is a powerful oxidizing agent that releases chlorine. It is a broad-spectrum, high-level disinfectant used for surfaces and water treatment, capable of killing bacteria, viruses, and fungi. Hydrogen peroxide (A) can act as a disinfectant at high concentrations (>3%) but is used as an antiseptic at lower concentrations. Penicillin (B) is an antibiotic for therapeutic use inside the body. Methyl paraben (C) is primarily a preservative used to inhibit microbial growth in products like cosmetics and foods; it is bacteriostatic/fungistatic, not a disinfectant. Bleaching powder's primary role is disinfection.

Question 55. In the elderly population, which of the following vaccinations is advised? 1. Varicella zoster virus 2. Rota virus 3. Influenza vaccine 4. Pneumococcal Meningitis

A. 1, 2, 3, 4

B. 1,3

C. 1, 3 and 4

D. 2,3

Correct answer: C

1, 3 and 4 Vaccination strategies for the elderly focus on preventing diseases that are more common or severe in this age group. 1. Varicella zoster virus vaccine: The recombinant zoster vaccine (Shingrix) is strongly recommended for adults aged 50 and older to prevent herpes zoster (shingles), a painful condition that increases in incidence and severity with age. 2. Rota virus vaccine: This vaccine is part of the routine immunization schedule for infants to prevent severe gastroenteritis and is not recommended for adults. 3. Influenza vaccine: Annual influenza vaccination is recommended for all adults, but it is especially important for the elderly, who are at high risk for severe complications from the flu. 4. Pneumococcal vaccine: Vaccines against Streptococcus pneumoniae are recommended for older adults to protect against pneumonia, bacteremia, and meningitis. Therefore, the varicella-zoster, influenza, and pneumococcal vaccines are all advised for the elderly.

Question 56. Which of the options provided is an instance of Mollicutes?

A. Ureaplasma urealyticum

B. Orientia tsutsugamushi

C. Chlamydophila pneumoniae

D. Chlamydia trachomatis

Correct answer: A

Ureaplasma urealyticum The class Mollicutes is a group of bacteria uniquely characterized by the complete absence of a cell wall. This fundamental structural difference makes them resistant to many common antibiotics, like penicillins, that target cell wall synthesis. The genera Mycoplasma and Ureaplasma are the primary human pathogens within this class. Therefore,

Ureaplasma urealyticum is a classic example of a Mollicute. In contrast, Orientia tsutsugamushi (B) is a species of Rickettsia. Chlamydophila pneumoniae (C) and Chlamydia trachomatis (D) are obligate intracellular bacteria belonging to the phylum Chlamydiae; they possess a cell wall, although it uniquely lacks peptidoglycan.

Question 57. Which test should be used to determine whether H. pylori treatment has been effective in a patient with peptic ulcer disease?

A. Endoscopy

B. IgG antibody study

C. Urea breath test

D. Urease test of biopsy

Correct answer: C

Urea breath test After a course of eradication therapy for Helicobacter pylori, it is crucial to perform a "test-of-cure" to confirm the infection is gone. The urea breath test (UBT) is the preferred non-invasive method for this purpose. The patient swallows a substance containing urea labeled with a carbon isotope (^{13}C or ^{14}C). If active H. pylori bacteria are present in the stomach, their potent urease enzyme will break down the urea, releasing labeled carbon dioxide (CO 2). This labeled CO 2 is absorbed into the blood and then exhaled, where it can be detected in a breath sample. Its presence indicates treatment failure. An IgG antibody study (B) is not useful for confirming eradication because antibodies can remain elevated for a long time after the infection is cleared. Endoscopy (A) with a biopsy for a urease test (D) is invasive and generally reserved for initial diagnosis or if there are other indications for follow-up endoscopy.

Question 58. _____ is the regulation of genes whose expression depends on whether they are maternally or paternally inherited, which is controlled by DNA methylation.

A. Gonadal mosaicism

B. Genomic imprinting

C. Anticipation

D. Incomplete penetrance

Correct answer: B

Genomic imprinting Genomic imprinting is an epigenetic process where certain genes are expressed in a parent-of-origin-specific manner. For an imprinted gene, only one of the two inherited alleles (either the maternal or the paternal) is expressed, while the other is silenced. This "imprint" is established in the germ cells of the parents and is maintained throughout the somatic cells of the offspring. The primary mechanism controlling this monoallelic expression is DNA methylation at specific DNA regions called imprinting control centers. This methylation pattern marks the allele for silencing. It is a form of gene regulation that does not involve

changes to the DNA sequence itself. Disorders like Prader-Willi syndrome and Angelman syndrome are classic examples of diseases caused by defects in genomic imprinting.

Question 59. Which of the following statements accurately describes clinical trials?

A. New drug application is done after phase 4

B. Phase 4 is also called post marketing surveillance

C. Phase 3 is always double blinded

D. Phase 2 is done on healthy individuals

Correct answer: B

Phase 4 is also called post marketing surveillance Clinical drug development proceeds through several phases. (D) Phase 1 studies assess safety and are typically done in a small number of healthy individuals, but Phase 2 trials are conducted in patients to assess efficacy, making statement D incorrect. Phase 3 trials are large-scale studies in patients to confirm efficacy and safety. A New Drug Application (NDA) is submitted for regulatory approval after successful completion of Phase 3. (B) Phase 4 studies are conducted after a drug has been approved and marketed. They are designed to monitor the drug's long-term safety and effectiveness in a broad population under real-world conditions. This is accurately called post-marketing surveillance. (A) The drug application is filed after Phase 3, not Phase 4. (C) While double-blinding is a common and robust design for Phase 3 trials, it is not always feasible or ethically appropriate, so it is not an absolute requirement.

Question 60. According to the National Blindness and Visual Impairment Survey (2015–2019), what is the most common cause of moderate to severe visual impairment?

A. Refractive error

B. Untreated cataract

C. Glaucoma

D. Diabetic retinopathy

Correct answer: B

Untreated cataract According to the National Blindness and Visual Impairment Survey (India, 2015–2019), untreated cataract was reported as the most common cause of moderate to severe visual impairment (MSVI) as well as blindness in adults aged 50 years and above. While uncorrected refractive error is a major contributor to visual impairment globally, the Indian national survey data specifically identified untreated cataract as the leading cause of MSVI in the surveyed population. Cataract causes progressive clouding of the lens, leading to gradual reduction in visual acuity. Because many affected individuals do not undergo timely cataract surgery, it remains the most significant cause. Refractive errors were reported as the second most common cause of visual impairment. Glaucoma and diabetic retinopathy contribute smaller proportions compared to cataract. Thus, based on the National Blindness and Visual

Impairment Survey (2015–2019), the most common cause of moderate to severe visual impairment is : (B) Untreated cataract

Question 61. Five-year-old Ram and three-year-old Sham are the sons of Rama Devi. Sham developed a rash, which she dismissed as an allergy. Ten days later, Ram also developed a rash accompanied by fever, prompting her to take him to the primary health centre (PHC). The PHC staff suspected measles. Which of the following statements are correct?: 1. Ram is an index case. 2. Sham is a primary case. 3. Ram got the infection from Sham. 4. Ram could've gotten post-exposure prophylaxis if the mother had brought him to the hospital when Sham got the rash.

A. 1, 2, 3 and 4 are correct

B. 1 only is correct

C. 1 and 4 are correct

D. 1 and 3 are correct

Correct answer: A

1, 2, 3 and 4 are correct This scenario illustrates several key epidemiological concepts. 1. Index case: The first case to be brought to the attention of the health system. Since Ram was taken to the PHC, he is the index case. (Correct) 2. Primary case: The first person to introduce the disease into a group (in this case, the family). Sham developed the rash first, so he is the primary case. (Correct) 3. Secondary case: Ram developed symptoms 10 days after Sham, which is consistent with the incubation period of measles. He likely contracted the infection from his brother, making him a secondary case. (Correct) 4. Post-exposure prophylaxis (PEP): For measles, PEP with either the MMR vaccine (within 72 hours of exposure) or immunoglobulin (within 6 days of exposure) can prevent or modify the illness in susceptible contacts. Had Ram been seen when Sham first became ill, he would have been eligible for PEP. (Correct) Therefore, all four statements are accurate descriptions of the situation.

Question 62. While checking a patient’s blood pressure at a primary health centre, the sphygmomanometer fell and broke, spilling mercury on the floor. What steps should be taken to clean up the mercury safely?

A. Use a card to gather the mercury onto a sheet of paper and place it in a sealed jar.

B. Sweep up the mercury with a broom and dispose of it outside.

C. Sweep up the mercury and flush it down the toilet. NODIA page 375 INICET Examination Paper

D. Pick up the mercury by hand and wash hands with water afterward.

Correct answer: A

Use a card to gather the mercury onto a sheet of paper and place it in a sealed jar. Elemental mercury is a hazardous substance; its vapor is toxic when inhaled, and it can be absorbed through the skin. Spills must be handled carefully to minimize exposure and contamination. The

correct procedure for a small spill is to consolidate the mercury beads without breaking them up further. Using a stiff piece of paper or cardboard to gently roll the beads together and then onto another sheet of paper is the recommended method. The collected mercury should then be placed into an airtight, unbreakable container (like a sealed glass jar), labeled as hazardous waste, and disposed of according to local guidelines. Using a broom (B) or vacuum cleaner will disperse the mercury into smaller, more volatile droplets. Flushing it (C) contaminates the water supply, and direct hand contact (D) is dangerous.

Question 63. Which field of statistics is involved in describing the internal data collection?

A. Theoretical statistics

B. Descriptive statistics

C. Analytical statistics

D. Inferential statistics

Correct answer: B

Descriptive statistics The field of statistics is broadly categorized into two main branches. Descriptive statistics is the branch that deals with methods of summarizing, organizing, and presenting data in a meaningful way. It aims to describe the basic features of a dataset. This includes calculating measures like mean, median, and mode, creating frequency distributions, and generating visual representations such as histograms and bar charts. The phrase "describing the internal data collection" aligns perfectly with the function of descriptive statistics. In contrast, inferential statistics (D) involves using data from a sample to make conclusions or predictions about a larger population from which the sample was drawn. It involves hypothesis testing and estimation.

Question 64. For which airborne infections is it essential to place patients in a separate isolation room?

A. Measles

B. Rabies

C. Nipah

D. Aseptic meningitis

Correct answer: A

Measles Airborne precautions, including isolation in a special negative-pressure room (Airborne Infection Isolation Room or AIIR), are required for pathogens that are transmitted via small aerosolized droplet nuclei (<5 microns). These tiny particles can remain suspended in the air for extended periods and travel long distances. Measles is a highly contagious virus that spreads through the airborne route, making strict airborne isolation essential to prevent transmission in a healthcare setting. Rabies (B) is transmitted via direct contact with the saliva of an infected animal (e.g., a bite). Nipah virus (C) spreads through contact with infected

animals or through large droplet transmission between humans. Aseptic meningitis (D) is most often viral and typically requires standard or droplet precautions, not airborne.

Question 65. Which of the following statements is false regarding rabies immunoglobulin?

A. It is exclusively given only in the deltoid

B. The dose is 20 IU/kg

C. Administer it immediately after exposure

D. If human RIG is unavailable, equine is preferred

Correct answer: A

It is exclusively given only in the deltoid This statement is false. The most critical principle of rabies immunoglobulin (RIG) administration is to infiltrate as much of the dose as is anatomically feasible directly into and around the wound(s). This is done to neutralize the virus at the site of inoculation. Any remaining RIG that cannot be infiltrated around the wound should be given as a deep intramuscular injection at a site distant from the rabies vaccine administration site (e.g., the gluteal area). It is not given exclusively in the deltoid. The other statements are true: the dose for human RIG (HRIG) is 20 IU/kg (B), it should be given as soon as possible after exposure (C), and equine RIG (ERIG) is the alternative if HRIG is not available (D).

Question 66. If a point-of-care test with 98% sensitivity gives a negative result in a patient, what does this imply?

A. The patient would need another point-of- care diagnostic test for the same clinical condition

B. The prevalence of the disease is 2%

C. The patient is less likely to have the disease

D. The patient has been wrongly ruled out due to false negatives

Correct answer: C

The patient is less likely to have the disease Sensitivity refers to a test's ability to correctly identify individuals who have a specific disease (the true positive rate). A test with 98% sensitivity will correctly detect the disease in 98 out of 100 people who are truly infected, with only a 2% false-negative rate. Because of this high sensitivity, a negative result carries significant weight. There is a very high probability that a person who tests negative with such a test does not have the disease. This concept is often summarized by the mnemonic "SnNout" (a highly Sensitive test, when Negative, helps to rule out the disease). Therefore, a negative result from this test indicates that the patient is very unlikely to have the condition.

Question 67. Which statement correctly interprets an attributable risk of 90% when assessing the link between smoking and lung cancer?

A. 10% of lung cancers in smokers is not associated with smoking

B. 80% of lung cancer cases can be eliminated in the population if smoking is eliminated

C. 90% of cases of lung cancer are due to smoking

D. 10% of lung cancer cases can be eliminated in the population if smoking is eliminated

Correct answer: C

90% of cases of lung cancer are due to smoking Attributable risk (AR%) among the exposed represents the proportion of disease in the exposed group that is due to the exposure. It is calculated as: If the attributable risk is 90%, it means that 90% of lung cancer cases occurring among smokers are attributable to smoking, and only 10% are due to other causes. It does not refer to the whole population (that would be population attributable risk). Therefore: 1. Option (B) refers to population impact, not AR among exposed. 2. Option (A) is partially true numerically but is not the correct interpretation format. 3. Option (D) is incorrect. Thus, an attributable risk of 90% means that 90% of lung cancer cases among smokers are due to smoking, making option (C) the correct interpretation.

Question 68. Which statements accurately describe aspects of cytomegalovirus (CMV) infection? 1. Neonates who are asymptomatic at birth have a lower risk of later sequelae compared to symptomatic neonates. 2. 10-20% of neonates with CMV are symptomatic at birth. 3. In developing countries, the transmission rate of CMV infection to the infant is more common from reactivation than primary maternal infection. 4. CMV can be diagnosed by a urine specimen collected within the first 3 weeks of life.

A. 1,2,4

B. 1,3

C. 2,3,4

D. 1,2,3,4

Correct answer: A

1,2,4 Congenital cytomegalovirus (CMV) infection is the most common congenital viral infection. Only about 10–20% of infected neonates are symptomatic at birth, presenting with features such as microcephaly, petechiae, hepatosplenomegaly, jaundice, and thrombocytopenia. Therefore, statement 2 is correct. Neonates who are symptomatic at birth have a significantly higher risk of long-term sequelae, including sensorineural hearing loss, developmental delay, seizures, and visual impairment. In contrast, most asymptomatic neonates have a lower risk of complications, although some may later develop hearing loss. Hence, statement 1 is correct. Diagnosis of congenital CMV infection requires detection of the virus in urine or saliva collected within the first 3 weeks (21 days) of life. Detection after this period may represent postnatal infection, particularly through breast milk. Therefore, statement 4 is correct. Statement 3 is incorrect because although reactivation can transmit infection, the highest risk of congenital infection and severe disease occurs with primary maternal infection,

not reactivation. Thus, statements 1, 2, and 4 are accurate.

Question 69. After an earthquake, changing building codes to ensure structures are earthquake-resistant falls under which component of disaster management?

A. Disaster response

B. Disaster reconstruction

C. Disaster rehabilitation

D. Disaster mitigation

Correct answer: D

Disaster mitigation The disaster management cycle includes mitigation, preparedness, response, and recovery. Mitigation refers to measures taken to reduce or eliminate the risk and impact of future disasters. Modifying building codes to require earthquake-resistant construction is a prime example of structural mitigation. Although this action may be prompted by a recent earthquake, its purpose is to lessen the damage from future seismic events. It is a proactive, long-term risk reduction strategy. Response (A) is the immediate action during and after a disaster. Reconstruction (B) and rehabilitation (C) are part of the post-disaster recovery phase. Implementing stronger codes is a key component of the "building back better" philosophy, which integrates mitigation into the recovery process.

Question 70. Match the following stages with their relevant descriptions. 1. Pre-pathogene- sis a. Normal course without any inter- vention 2. Pathogenesis b. Appearance of clinical signs and symptoms 3. Natural history of a disease c. Reaching normalcy with the help of the community 4. Rehabilitation d. Period before the onset of the disease

A. 1-c, 2-d, 3-a, 4-d

B. 1-d, 2-b, 3-a, 4-c Click Here to Buy book on Amazon MEDINK

C. 1-b, 2-d, 3-c, 4-d

D. 1-a, 2-c, 3-d, 4-b

Correct answer: B

1-d, 2-b, 3-a, 4-c The Pre-pathogenesis period is the stage before the disease agent has interacted with the host to cause disease. It corresponds to the period before the onset of the disease (d). The Pathogenesis period begins with the entry of the agent and includes the entire course of the disease process. The appearance of clinical signs and symptoms (b) is a key event within this period. The Natural history of a disease describes the complete progression of a disease from its inception to its final outcome, without any medical intervention. It is the normal course without any intervention (a). Rehabilitation is a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions. It involves helping the person return to a state of normalcy with support from healthcare and the community (c).

Question 71. Identify the formula given below: ( ) n x x 1 2 - - /

A. Standard deviation

B. Standard error

C. Median

D. Variance

Correct answer: A

Standard deviation The formula represents the sample standard deviation. It is a measure of the amount of dispersion or variation of a set of values.

Question 72. Which statement is correct about the management of a child bitten by a stray dog, who on examination has a 1.5 cm abrasion with slight oozing? 1. Category 3 wound 2. Wash the wound with normal tap water for 15-20 minutes 3. Clean the wound with spirit 4. Loose suturing of the wound with a proper dressing 5. Equine immunoglobulin is given at a dose of 40 IU/kg of body weight, twice 6. The intra-dermal vaccine is administered on days 0, 3, 7, 28

A. 2,3,5,6

B. 1,2,3,6

C. 1,2,3,5

D. 1,2,5,6

Correct answer: D

1,2,5,6 A 1.5 cm abrasion with slight oozing indicates transdermal injury, which is classified as a Category III wound under WHO rabies exposure guidelines. Therefore, statement 1 is correct. Immediate wound washing with running tap water and soap for at least 15–20 minutes is essential. This is the most effective first aid measure to reduce viral load. Hence, statement 2 is correct. Cleaning with spirit is not recommended as the primary cleaning agent. Soap and water followed by povidone-iodine or another virucidal agent should be used. Spirit may cause tissue irritation and is not preferred. So statement 3 is incorrect. Loose suturing is generally avoided unless absolutely necessary and only after infiltration of rabies immunoglobulin. It is not routinely recommended. Equine rabies immunoglobulin (ERIG) is given at 40 IU/kg body weight, infiltrated locally once (not twice). So statement 5 (as written previously) would be incorrect if it says “twice.” The intradermal vaccine schedule on days 0, 3, 7, and 28 is correct. Thus, correct statements are 1, 2, 5, and 6, making option (D) correct.

Question 73. Which of the following tests is not used to assess nasal mucociliary clearance?

A. Saccharine test

B. Electron microscopy

C. Charcoal powder method

D. Scintigraphy

Correct answer: B

Electron microscopy Nasal mucociliary clearance is the physiological process of cleaning the nasal passages. Several tests measure its function: The Saccharine test (A) and Charcoal powder method (C) are functional tests that measure the time it takes for a substance placed in the nose to be transported to the pharynx. Scintigraphy (D) is a more objective functional test using a radioactive tracer to visualize and quantify the movement of mucus. In contrast, electron microscopy (B) is a structural test, not a functional one. It is used to examine the ultrastructure of the cilia themselves (the axoneme) to look for congenital defects, such as those seen in Primary Ciliary Dyskinesia (PCD). While an abnormal structure can explain poor function, electron microscopy does not directly measure the rate or effectiveness of clearance.

Question 74. Match the following. Wullstein's Classification Procedure/other name:

a. Type II Fenestration tympanoplasty

b. Type III Graft placed over the incus

c. Type IV Cavum minor

A. a-1, b-2, c-3, d-4

B. a-2, b-4, c-3, d-1

C. a-2, b-3, c-4, d-1

D. a-1, b-3, c-4, d-2

Correct answer: C

1, 3 and 4 This is a duplicate of the previous question. To reiterate, vaccination guidelines for older adults prioritize protection against infections with high morbidity and mortality in this age group. (1) The Varicella zoster virus vaccine (for shingles) is recommended for adults 50 years and older. (3) The annual influenza vaccine is crucial for preventing severe illness from seasonal flu. (4) The pneumococcal vaccine is recommended to prevent diseases like pneumonia and invasive meningitis. (2) The Rota virus vaccine is a pediatric vaccine and is not administered to adults. Thus, the correct combination of recommended vaccines for the elderly from this list is 1, 3, and 4.

Question 75. If otoacoustic emissions (OAEs) are absent, which additional tests can be used for hearing screening?

A. Pure tone audiometry

B. Tympanometry

C. Free field audiometry

D. Speech audiometry

Correct answer: B

Tympanometry Otoacoustic emissions (OAEs) are sounds generated by the outer hair cells of the cochlea, used for newborn hearing screening. A "pass" result indicates a healthy cochlea. A "refer" result (absent OAEs) can mean a problem in the cochlea (sensorineural hearing loss) OR

a problem in the outer or middle ear that prevents the sound from getting in or the emission from getting out. The most common reason for a "refer" in a newborn is fluid in the middle ear (otitis media with effusion). Therefore, the immediate next step is to assess the middle ear status. Tympanometry is an objective test that measures the mobility of the eardrum and the pressure in the middle ear. It can quickly and reliably detect middle ear problems like fluid or eustachian tube dysfunction, helping to differentiate the cause of the absent OAEs.

Question 76. A 2-year-old child is brought to the emergency department with breathing difficulty. Chest X-ray reveals hyperinflation of the right lung, with the left lung appearing normal. Which of the following statements is correct?

A. Decreased air entry on a particular part of auscultation is suggestive of a foreign body

B. Removal by flexible bronchoscopy is the treatment of choice (TOC)

C. Complete obstruction at the bronchus can cause hyperinflation of the lung due to the ball-valve effect

D. Acute tracheobronchitis

Correct answer: C

Complete obstruction at the bronchus can cause hyperinflation of the lung due to the ball-valve effect In a 2-year-old child with sudden breathing difficulty and unilateral hyperinflation on chest X-ray, foreign body aspiration is highly suspected. When a foreign body partially obstructs a bronchus, it can act as a ball-valve mechanism. During inspiration, air enters past the obstruction, but during expiration, the airway collapses around the object, preventing air from escaping. This leads to air trapping and hyperinflation of the affected lung, as seen in the X-ray. Strictly speaking, it is partial obstruction, not complete obstruction, that produces the ball-valve effect. However, among the given options, (C) best describes the mechanism responsible for unilateral hyperinflation. 1. Option (A) is nonspecific. 2. Option (B) is incorrect because rigid bronchoscopy, not flexible bronchoscopy, is the treatment of choice in children. 3. Option (D) does not explain unilateral hyperinflation. Thus, the correct option is (C), referring to the ball-valve effect causing hyperinflation. OPHTHALMOLOGY

Question 77. What is the most likely diagnosis in a patient who presents with vertigo and horizontal nystagmus, with the slow phase beating to the left?

A. Posterior canal BPPV

B. Superior canal BPPV

C. Right hypoactive labyrinth

D. Left hypoactive labyrinth

Correct answer: D

Left hypoactive labyrinth In peripheral vestibular disorders, nystagmus results from an imbalance in vestibular tone between the two ears. A hypoactive (weakened) labyrinth sends fewer signals to the brainstem. The brain interprets this lack of signal as a head turn towards

the opposite, healthy side. The vestibulo-ocular reflex (VOR) then tries to compensate by slowly moving the eyes towards the side of the hypoactive labyrinth. This slow movement is the slow component of the nystagmus. In this case, the slow component is directed to the left. This indicates that the left labyrinth is hypoactive. The fast, corrective saccade will be in the opposite direction (to the right), so this would be described clinically as a right-beating nystagmus. Benign Paroxysmal Positional Vertigo (BPPV) in the posterior or superior canals (A, B) typically causes torsional-vertical nystagmus, not purely horizontal nystagmus.

Question 78. Which eye symptom is most commonly associated with COVID-19 infection?

A. Uveitis

B. Mucormycosis

C. Follicular conjunctivitis

D. Papillary conjunctivitis

Correct answer: C

Follicular conjunctivitis A variety of ocular manifestations have been linked to COVID-19 infection. The most commonly reported and recognized ocular finding is conjunctivitis. Characteristically, this presents as a follicular conjunctivitis, which is typical for many viral infections. It involves inflammation of the conjunctiva with symptoms like redness, watering, and foreign body sensation. On examination, small lymphoid follicles are visible on the palpebral conjunctiva. While mucormycosis (B) was a highly publicized and severe complication, it was an opportunistic secondary fungal infection in immuno compromised patients (often due to steroids and diabetes) and not a direct, common symptom of the SARS-CoV-2 infection itself. Uveitis (A) and papillary conjunctivitis (D) have also been reported in association with COVID-19, but they are considered much less frequent than follicular conjunctivitis.

Question 79. In which of the following conditions is atropine not recommended for use?

A. Acute congestive glaucoma

B. Acute anterior uveitis

C. Malignant glaucoma

D. Corneal ulcer

Correct answer: A

Acute congestive glaucoma Atropine is a strong mydriatic (pupil-dilating) and cycloplegic (ciliary muscle-paralyzing) agent. Its use is absolutely contraindicated in acute congestive glaucoma, which is another term for acute angle-closure glaucoma. In a patient with a narrow anterior chamber angle, dilating the pupil with atropine causes the peripheral iris to bunch up and physically block the trabecular meshwork, which is the eye's drainage system. This obstruction prevents the outflow of aqueous humor, leading to a rapid and dangerous increase

in intraocular pressure, which can cause blindness. In all the other conditions listed, atropine is therapeutic. In uveitis (B) and corneal ulcers (D), it relieves painful ciliary muscle spasm and prevents the iris from sticking to the lens. In malignant glaucoma (C), it is used to pull the lens-iris diaphragm backward.

Question 80. During a routine eye check using a Snellen chart, a patient's visual acuity is recorded as 6/6. With this level of vision, what is the minimum angle at which the patient can distinguish two distinct points?

A. 15 minutes of arc

B. 5 minutes of arc

C. 10 minutes of arc

D. 20 minutes of arc

Correct answer: B

5 minutes of arc This question is slightly tricky in its wording. The standard of normal vision (6/6 or 20/20) is defined by the ability to resolve a detail that subtends a visual angle of 1 minute of arc. The letters on a Snellen chart are designed so that the entire letter subtends an angle of 5 minutes of arc at the specified distance (e.g., 6 meters for the 6/6 line). The individual components of the letter, like the strokes and the gaps between them, subtend an angle of 1 minute of arc. Therefore, to be able to "differentiate two separate points or objects" that make up the letter (i.e., to identify the letter), the patient must be able to see the overall letter. The size of this smallest identifiable letter on the 6/6 line corresponds to a visual angle of 5 minutes of arc.

Question 81. Which of the following does not characterize complicated cataracts?

A. Krukenberg spindle

B. Polychromatic luster

C. Occurs after uveitis

D. Breadcrumb appearance

Correct answer: A

Krukenberg spindle A complicated cataract is a type of lens opacification that develops as a direct consequence of another underlying intraocular disease. The most common cause is chronic anterior uveitis (C), where inflammatory processes disrupt the lens metabolism. On slit-lamp examination, these cataracts often have a characteristic appearance, including a "breadcrumb" or "fluffy" opacity (D), typically starting in the posterior subcapsular area. A pathognomonic sign is a polychromatic luster (B), which is an iridescent sheen of rainbow colors seen on the posterior capsule, caused by the deposition of cholesterol crystals. In contrast, a Krukenberg spindle (A) is an unrelated finding. It refers to a vertical, spindle-shaped deposition of pigment on the inner surface (endothelium) of the cornea. This pigment originates from the iris and is a classic sign of pigment dispersion syndrome or pigmentary glaucoma, not a

complicated cataract.

Question 82. What characteristic clinical sign is seen in Klumpke’s paralysis, which results from injury to the lower brachial plexus?

A. Policeman tip hand

B. Wrist drop

C. Claw hand

D. Horner's syndrome

Correct answer: C

Claw hand Klumpke's paralysis is a palsy of the lower brachial plexus, involving the C8 and T1 nerve roots. These roots primarily supply the intrinsic muscles of the hand via the ulnar and median nerves. Paralysis of these small muscles (lumbricals and interossei) leads to an imbalance between the extrinsic and intrinsic hand muscles. The unopposed action of the long flexors and extensors results in hyperextension of the metacarpophalangeal (MCP) joints and flexion of the interphalangeal (IP) joints, producing the characteristic "claw hand" deformity. Policeman tip hand (A) is seen in upper brachial plexus (Erb's) palsy. Wrist drop (B) is caused by radial nerve injury. While Horner's syndrome (D) (ptosis, miosis, anhidrosis) can be associated with Klumpke's paralysis if the T1 sympathetic fibers are also damaged, the "claw hand" is the distinctive feature of the hand itself resulting from the C8-T1 motor deficit.

Question 83. Which of the following drugs is not used in treating a young boy with a history of multiple blood transfusions, bone pain, and sickle-shaped red blood cells on peripheral smear?

A. Bebtelovimab

B. Voxelotor

C. Hydroxyurea

D. L-glutamine

Correct answer: A

Bebtelovimab The clinical presentation of bone pain (vaso-occlusive crisis) and sickle-shaped cells on a peripheral smear is diagnostic of sickle cell disease. Several disease-modifying therapies are approved for this condition. Hydroxyurea (C) is a long-standing treatment that increases fetal hemoglobin (HbF), reducing sickling. Voxelotor (B) is a newer oral therapy that directly inhibits the polymerization of sickle hemoglobin. L-glutamine (D) is an amino acid supplement approved to reduce the frequency of pain crises, possibly by reducing oxidative stress. In contrast, Bebtelovimab (A) is a recombinant human monoclonal antibody designed to act against the spike protein of the SARS-CoV-2 virus. It was used for the treatment of mild-to-moderate COVID-19 and has absolutely no role in the management of sickle cell disease.

Question 84. A 50-year-old man has a positive Trendelenburg test on the right side. Which nerve is involved?

A. Right inferior gluteal nerve

B. Right superior gluteal nerve

C. Left superior gluteal nerve

D. Left inferior gluteal nerve

Correct answer: B

Right superior gluteal nerve The Trendelenburg test assesses the function of the gluteus medius and gluteus minimus muscles, which are responsible for stabilizing the pelvis during walking. These muscles are innervated by the superior gluteal nerve. In a normal person standing on the right leg, the right gluteus medius and minimus contract to keep the pelvis level. If these muscles are weak or paralyzed, the pelvis drops on the opposite (left) side. This is a positive Trendelenburg sign. A positive Trendelenburg test on the right side means that when the patient stands on the right leg, the pelvis drops on the left side. This indicates weakness of the right gluteus medius and minimus, and therefore injury to the right superior gluteal nerve. The inferior gluteal nerve supplies the gluteus maximus, which is involved in hip extension, not pelvic stabilization. Hence, it is not responsible for a positive Trendelenburg sign. Therefore, the involved nerve is the right superior gluteal nerve.

Question 85. An elderly vegetarian patient presents with fatigue and pallor. A peripheral smear shows macrocytic anemia, and lab findings include hemoglobin of 9 g/dL, MCV of 110 fL, elevated serum homocysteine, and normal methylmalonic acid. What is the most likely cause of this patient’s anemia?

A. Vitamin B12 deficiency

B. Vitamin B6 deficiency

C. Alcohol-induced macrocytosis

D. Thiamine deficiency

Correct answer: A

Vitamin B12 deficiency This question presents conflicting information, a common challenge in exams. The laboratory pattern—macrocytic anemia with elevated homocysteine and normal methylmalonic acid (MMA)—is the classic biochemical signature for folate deficiency. However, folate deficiency is not provided as an option. The clinical history of a vegetarian diet is a strong risk factor for Vitamin B12 deficiency, as B12 is found almost exclusively in animal products. Vitamin B12 deficiency also causes macrocytic anemia and elevated homocysteine, but it is distinguished by a concurrent elevation in MMA. Given the provided options, one must infer a likely error in the question's premise. The most probable intended answer, linking the clinical history to a diagnosis, is Vitamin B12 deficiency, despite the contradictory normal MMA level. In a test setting, recognizing the strong association between a vegetarian/vegan diet and B12

deficiency is often the key point being tested.

Question 86. A 30-year-old patient presents with hypopigmented skin patches. Examination shows a few well-defined, slightly elevated lesions with sensory loss, and skin smears are negative for acid-fast bacilli. What is the most likely diagnosis?

A. Multibacillary leprosy Click Here to Buy book on Amazon page 385 INICET Examination Paper 2. Temperature of 38-39°C 3. Duration of fever <24 h 4. Duration of fever >48 h

B. 1,4

C. 1,2,3

D. 1,3,4

Correct answer: C

1,2,3 The risk of recurrence after a first simple febrile seizure is approximately 30%. Certain factors are known to increase this risk: 1. Young age at onset: The risk of recurrence is significantly higher if the first seizure occurs in an infant less than 12 or 15 months old. 2. Lower degree of fever: A seizure occurring with a relatively low-grade fever (e.g., 38-39°C) suggests a lower seizure threshold for that child, increasing the risk of recurrence with future febrile illnesses. 3. Short duration between fever onset and seizure: If the seizure occurs very soon after the fever begins (e.g., fever for less than 24 hours), the risk of recurrence is higher. 4. A family history of febrile seizures in a first-degree relative is another major risk factor. Therefore, factors 1, 2, and 3 are all established predictors for an increased risk of febrile seizure recurrence.

Question 87. Zellweger syndrome results from an abnormality in the formation of:

A. Peroxisomes

B. Lysosomes

C. Mitochondria

D. Nucleus

Correct answer: A

Peroxisomes Zellweger syndrome is the prototypical and most severe of the peroxisomal biogenesis disorders (PBDs). Peroxisomes are essential membrane-bound organelles involved in numerous metabolic pathways, including the breakdown of very-long-chain fatty acids (VLCFAs) and the synthesis of plasmalogens, which are crucial for brain and nerve myelination. In PBDs, mutations in PEX genes lead to a failure in the assembly of functional peroxisomes. As a result, peroxisomal enzymes are not correctly imported into the organelle and remain in the cytosol, rendering them non-functional. This leads to the toxic accumulation of substances like VLCFAs, causing severe neurological defects, dysmorphic features, and liver dysfunction. The condition is incompatible with long-term survival. It is fundamentally a disease of peroxisome formation, distinct from disorders of lysosomes, mitochondria, or the nucleus.

Question 88. Which statement in rapid sequence intubation is incorrect?

A. Preoxygenation with 100% oxygen for 3 min is done

B. High-volume, low-pressure cuff is used

C. It is the first choice of treatment in cardiac arrest patients

D. The induction agent and muscle relaxant are given simultaneously

Correct answer: C

It is the first choice of treatment in cardiac arrest patients This statement is incorrect. Rapid Sequence Intubation (RSI) is a specific technique for endotracheal intubation in patients who have a full stomach or are otherwise at high risk of aspiration and who still have intact airway reflexes. It involves the near-simultaneous administration of an induction agent and a neuromuscular blocking agent. Patients in cardiac arrest are, by definition, unconscious and flaccid; they have no muscle tone and no protective airway reflexes. Therefore, there is no need to administer anesthetic or paralytic drugs to facilitate intubation. Airway management in cardiac arrest prioritizes chest compressions and involves basic maneuvers followed by intubation without drugs. The other statements are correct components of RSI: preoxygenation (A) is vital, high-volume, low-pressure cuffs (B) are standard for modern endotracheal tubes, and the co-administration of induction and paralytic agents (D) is the defining feature of the technique.

Question 89. What is the most distinctive feature of Kallmann syndrome among the options provided?

A. Anosmia

B. Syndactyly in males

C. Precocious puberty in females

D. White forelock

Correct answer: A

Anosmia Kallmann syndrome is a genetic disorder that causes hypogonadotropic hypogonadism, resulting in delayed or absent puberty. The feature that uniquely distinguishes Kallmann syndrome from other forms of isolated hypogonadotropic hypogonadism is the associated anosmia (complete loss of smell) or hyposmia (reduced sense of smell). This specific combination of symptoms occurs due to a developmental defect where the neurons responsible for producing gonadotropin-releasing hormone (GnRH) fail to migrate from their embryonic origin in the olfactory placode to their proper location in the hypothalamus. Because the olfactory bulbs also fail to develop properly during this process, the sense of smell is impaired. While other anomalies like syndactyly (B) can occur, anosmia is the most consistent and distinctive feature. The condition causes absent puberty, not precocious puberty (C). A white forelock (D) is seen in Wurttemberg syndrome.

Question 90. A 40-year-old man with chronic alcoholism is undergoing withdrawal,

and his liver function tests show elevated AST, ALT, and GGT levels. Given his impaired liver function, which benzodiazepine is the safest choice for managing his withdrawal symptoms?

A. Diazepam

B. Alprazolam

C. Clonazepam

D. Lorazepam

Correct answer: D

Lorazepam Benzodiazepines are the cornerstone of therapy for alcohol withdrawal. However, in a patient with compromised liver function, as suggested by the elevated liver enzymes, the choice of agent is critical. Most benzodiazepines, including diazepam, are metabolized through oxidative pathways in the liver (cytochrome P450 system), which can be significantly impaired in liver disease. This can lead to drug accumulation and prolonged sedation. Lorazepam, however, is metabolized primarily through glucuronidation, a process that is much better preserved in patients with liver dysfunction. For this reason, lorazepam, along with oxazepam and temazepam (mnemonic: "Outside The Liver"), are the preferred benzodiazepines in patients with alcoholic liver disease. They have a shorter half-life and no active metabolites, making them a safer choice to manage withdrawal symptoms in this patient population.

Question 91. Which of the options listed below does not assist in the identification of spinal cord lesions?

A. Contralateral hemiplegia

B. Fasciculation at the level of lesion

C. Upper motor neuron lesion and lower motor neuron lesion

D. Bladder involvement

Correct answer: A

Contralateral hemiplegia Contralateral hemiplegia—paralysis of the arm, leg, and face on the side of the body opposite the lesion—is the hallmark of a lesion in the brain, specifically in the motor pathways above the decussation of the pyramids in the medulla (e.g., motor cortex, internal capsule). Spinal cord lesions produce different patterns. A key feature of a spinal cord lesion is a combination of lower motor neuron (LMN) signs (like flaccid paralysis and fasciculations) at the specific level of the cord that is damaged, and upper motor neuron (UMN) signs (like spasticity and hyperreflexia) in all segments below the level of the lesion (C). Bladder involvement (D), such as urinary retention or incontinence, is also a very common and localizing sign of a significant spinal cord injury. Therefore, contralateral hemiplegia points to an intracranial, not a spinal cord, lesion.

Question 92. Which of the following is not characteristic of Brown-Séquard syndrome?

A. Complete transection of spinal cord

B. Ipsilateral loss of vibration & touch

C. Contralateral loss of pain & temperature

D. Ipsilateral loss of proprioception

Correct answer: A

Complete transection of spinal cord Brown-Séquard syndrome is, by definition, an incomplete spinal cord injury syndrome resulting from the hemisection of the spinal cord (damage to the right or left half). A complete transection would affect all tracts on both sides. The hemisection in Brown-Séquard syndrome produces a unique and predictable pattern of neurological deficits below the level of the injury: Ipsilateral spastic paralysis due to damage to the corticospinal tract. Ipsilateral loss of proprioception, vibration, and fine touch (B, D) due to damage to the dorsal columns. Contralateral loss of pain and temperature sensation (C) due to damage to the spinothalamic tract, which decussates (crosses over) soon after entering the spinal cord. Therefore, complete transection is contrary to the definition of this syndrome.

Question 93. A 65-year-old woman weighing 60 kg is on mechanical ventilation for ARDS due to urosepsis. Her ventilator settings are: tidal volume 360 mL, respiratory rate 30/min, PEEP 5 cm H_2O, and FiO_2 90%. Arterial blood gas results show PaO_2 50 mmHg, $PaCO_2$ 38 mmHg, and pH 7.38. What should be the next adjustment to her ventilatory management?

A. Increase PEEP

B. Reduce FiO 2

C. Increase tidal volume

D. Increase respiratory rate

Correct answer: A

Increase PEEP The patient has severe ARDS, evidenced by refractory hypoxemia (PaO2 of 50 mmHg on 90% FiO2). The goal is to improve oxygenation while minimizing ventilator-induced lung injury. Her tidal volume is 6 ml/kg (360/60), which is appropriate for a lung-protective strategy. Her PaCO2 and pH are normal, so her ventilation is adequate; there is no need to change the respiratory rate (D). Reducing FiO2 (B) would worsen the life-threatening hypoxemia. Increasing the tidal volume (C) would violate the lung-protective strategy. The most appropriate intervention is to increase the PEEP. In ARDS, the lungs are stiff and prone to alveolar collapse (atelectasis). Increasing PEEP helps to recruit collapsed alveoli, keep them open at the end of expiration, improve ventilation-perfusion matching, and thereby enhance oxygenation. This allows for a subsequent reduction in the FiO2 to less toxic levels (<60%).

Question 94. Which nerve is most likely injured when alcohol ingestion or other factors impair the cough reflex that normally prevents foreign bodies from entering the laryngeal inlet?

A. Internal laryngeal nerve

B. Glossopharyngeal nerve

C. External laryngeal nerve

D. Recurrent laryngeal nerve

Correct answer: A

Internal laryngeal nerve The cough reflex is a vital protective mechanism. The sensory (afferent) limb of this reflex detects the presence of foreign material or irritants in the airway. The most sensitive area for triggering this reflex is the laryngeal mucosa, particularly the area around the laryngeal inlet, aryepiglottic folds, and the vestibule above the vocal cords. The general sensory innervation to this entire supraglottic region is provided by the internal branch of the superior laryngeal nerve (a branch of the vagus nerve). Blunting of this nerve's function—whether by local anesthesia, neurological injury, or CNS depressants like alcohol—impairs the ability to detect foreign material, thus compromising the airway and increasing the risk of aspiration. The recurrent laryngeal nerve (D) provides sensory innervation below the vocal cords and motor function to most laryngeal muscles.

Question 95. A young man is hospitalized with high fever, altered mental status, and meningitis signs such as neck stiffness and pain on neck flexion. Lumbar puncture reveals 45 WBCs/µL with neutrophil predominance, raised opening pressure, protein 120 mg/dL, and glucose 70 mg/dL. What is the most appropriate initial management for this patient?

A. Piperacillin + tazobactam

B. Vancomycin + ceftriaxone

C. Amphotericin B + flucytosine

D. Antitubercular therapy

Correct answer: B

Vancomycin + ceftriaxone The clinical presentation strongly suggests acute bacterial meningitis. While the CSF WBC count is low, the neutrophilic predominance, high protein, and clinical signs warrant immediate empirical antibiotic therapy pending culture results. For community-acquired bacterial meningitis in a healthy adult, the most likely pathogens are Streptococcus pneumoniae and Neisseria meningitidis. The standard recommended empirical regimen is the combination of a third-generation cephalosporin (e.g., ceftriaxone) to cover both organisms, plus vancomycin to cover the possibility of drug-resistant S. pneumoniae. This combination provides broad and effective coverage for the most probable causes. Piperacillin/tazobactam (A) is not first-line for CNS infections. Amphotericin B (C) is for fungal meningitis, and antitubercular therapy (D) would be considered if TB meningitis were more likely, but the acute presentation makes bacterial meningitis the primary concern.

Question 96. A heart disease patient becomes breathless when walking to the

bathroom. Which functional grade does this correspond to?

A. NYHA 3

B. NYHA 4

C. mMRC 4

D. mMRC 5

Correct answer: A

NYHA 3 The New York Heart Association (NYHA) Functional Classification is used to grade the severity of symptoms in patients with heart failure. The mMRC (modified Medical Research Council) scale is for grading dyspnea in respiratory diseases like COPD. 1. NYHA Class I: No symptoms with ordinary activity. 2. NYHA Class II: Symptoms with ordinary activity (e.g., climbing two flights of stairs). 3. NYHA Class III: Symptoms with less than ordinary activity. The patient is comfortable at rest, but minimal exertion, such as walking a short distance to the bathroom or dressing, causes fatigue or dyspnea. This perfectly matches the patient's description. 4. NYHA Class IV: Symptoms at rest. Any physical activity increases discomfort. Therefore, experiencing breathlessness just by going to the bathroom classifies the patient as NYHA Class III.

Question 97. An elderly woman with a history of severe vomiting treated for dehydration one week earlier now presents with mutism, quadriplegia, and rigidity. Given this background and her current signs, what is the most likely diagnosis?

A. Rapid sodium correction

B. Malignant hyperthermia

C. Severe catatonia

D. Neuroleptic malignant syndrome

Correct answer: A

Rapid sodium correction The clinical sequence of events is highly suggestive of Osmotic Demyelination Syndrome (ODS), also known as Central Pontine Myelinolysis. The patient's initial history of severe vomiting likely led to chronic hyponatremia (low sodium). The subsequent treatment for dehydration, if it involved the overly rapid correction of this chronic hyponatremia, can have devastating neurological consequences. A rapid increase in serum sodium concentration causes an osmotic shift of water out of brain cells, leading to demyelination, particularly in the pons. The clinical manifestations, such as spastic quadriplegia, mutism (part of pseudobulbar palsy), and rigidity, typically appear a few days after the sodium correction, which matches the patient's timeline. The other conditions are not consistent with this history.

Question 98. In methanol intoxication, which of the following electrolyte abnormalities is observed?

A. Metabolic alkalosis with high anion gap

B. Metabolic acidosis with high anion gap

C. Metabolic acidosis with normal anion gap

D. Metabolic alkalosis with normal anion gap

Correct answer: B

Metabolic acidosis with high anion gap

Question 99. Hamman sign is seen in which of the following conditions?

A. Pneumomediastinum

B. Pneumoperitoneum

C. Pneumopericardium

D. Hydropneumothorax

Correct answer: A

Pneumomediastinum Hamman's sign, also known as Hamman's crunch, is a distinctive and pathognomonic clinical finding for pneumomediastinum (the presence of gas or air in the mediastinum). It is described as a crunching, crackling, or bubbling sound heard over the precordium that is synchronous with the heartbeat. The sound is produced by the heart beating against the air-filled mediastinal tissues. It is often best heard when the patient is in the left lateral decubitus position. Pneumomediastinum can result from various causes, including alveolar rupture (e.g., from severe coughing or Valsalva), esophageal perforation (Boerhaave syndrome), or trauma. While sometimes associated with pneumothorax or pneumopericardium, the sign itself localizes the air to the mediastinum.

Question 100. Which of the following are signs of heart failure? 1. Non-pulsatile rise of JVP 2. Orthopnea 3. Dyspnea after 2 hours of sleep 4. Right upper quadrant pain/ right hypochondrial pain

A. 1 and 2

B. 1,2,3

C. 2,3,4

D. 1,3,4

Correct answer: C

2,3,4 1. Incorrect. A raised jugular venous pressure (JVP) is a key sign of right-sided heart failure, but it is typically pulsatile. A non-pulsatile distention of neck veins is more indicative of superior vena cava obstruction. 2. Correct. Orthopnea, which is shortness of breath upon lying flat, is a classic symptom of left-sided heart failure due to pulmonary congestion. 3. Correct. Paroxysmal nocturnal dyspnea (PND), described here as dyspnea awakening the patient from sleep after a couple of hours, is a highly specific symptom of left-sided heart failure. 4. Correct. Right upper quadrant pain is a common symptom of right-sided heart failure. It is caused by hepatic congestion, where the engorged liver stretches its fibrous capsule (Glisson's capsule), causing a dull, aching pain. Thus, options 2, 3, and 4 are all well-recognized symptoms and

signs of heart failure.

Question 101. Which of the following options can be employed to determine cardiac output? a. ECHO NODIA MEDINK (D) a-4, b-3, c-2, d-1

A. a,b,c,d

B. b,a,d

C. b,c,d

D. a,c,d a. c. d. b.

Correct answer: B

a-3, b-4, c-1, d-2 a. A Marjolin ulcer (SCC in a chronic wound) is a large skin lesion. An incisional biopsy, such as a wedge biopsy (3) from the active edge, is appropriate for diagnosis. b. For a discrete cervical lymph node where lymphoma is a strong possibility, an excision biopsy (4) is the gold standard. It provides the entire node, which is essential for assessing the architecture needed for an accurate diagnosis. c. For a large, deep-seated soft tissue mass suspected to be a sarcoma, a core needle biopsy (1), often image-guided, is the preferred initial diagnostic procedure. It obtains adequate tissue for histology while minimizing tumor seeding. d. The standard first-line investigation for a solitary thyroid nodule to assess for malignancy is an ultrasound-guided fine-needle aspiration cytology (FNAC) (2).

Question 102. A male patient who has ingested an unknown substance now exhibits profuse sweating, excessive tearing, diarrhea, muscle weakness, and tachycardia. What is the correct management for this condition?

A. Calcium gluconate

B. Pralidoxime

C. Obidoxime

D. Atropine

Correct answer: D

Atropine The patient's symptoms—diaphoresis (sweating), lacrimation (tearing), diarrhea, and muscle weakness—are classic features of a cholinergic crisis. This is most commonly caused by poisoning with acetylcholinesterase inhibitors, such as organophosphate or carbamate insecticides. These toxins cause an excess of acetylcholine at both muscarinic and nicotinic synapses. The immediate, life-saving antidote is atropine. Atropine is a competitive antagonist of acetylcholine at muscarinic receptors. It works by blocking the excessive parasympathetic effects, thereby drying up secretions (bronchorrhea, salivation), increasing the heart rate (if bradycardic), and reducing bronchospasm. Large and repeated doses are often required. Pralidoxime (B) is an oxime used as an adjunct in organophosphate (but not carbamate) poisoning to reactivate the cholinesterase enzyme and treat nicotinic symptoms like muscle weakness, but atropine is the first-line and most critical intervention.

Question 103. What is the probable diagnosis in an elderly woman who suffered a fall and then, after several days, began to develop a headache and neurological deficits?

A. Multi-infarct dementia

B. Frontal lobe meningioma

C. Korsakoff disease

D. Subdural hematoma

Correct answer: D

Subdural hematoma The combination of head trauma (even a seemingly minor fall) in an elderly person followed by the gradual onset of headache and neurological symptoms (such as confusion, lethargy, or focal deficits) over days to weeks is the classic presentation of a chronic subdural hematoma (SDH). Elderly individuals are predisposed to this condition because age-related brain atrophy stretches the bridging veins that cross the subdural space. A minor trauma can tear these veins, leading to a slow, low-pressure venous bleed. The hematoma gradually expands, causing symptoms as it exerts mass effect on the brain. The other options are not consistent with this acute-on-chronic presentation following trauma. A chronic SDH is a critical diagnosis to consider in any elderly patient with a recent fall and new neurological complaints.

Question 104. Which of the following statements is true regarding shock?

A. Anaerobic respiration produces carbon dioxide

B. Septic shock-most common type

C. Stage of compensatory shock is also called stage 2 of shock

D. Anaphylactic shock-is due to Type 2 hypersensitivity reaction

Correct answer: C

Stage of compensatory shock is also called stage 2 of shock Shock is commonly divided into stages: 1. Initial stage (Stage 1) – Early cellular hypoxia begins; anaerobic metabolism starts. 2. Compensatory stage (Stage 2) – The body activates compensatory mechanisms such as tachycardia, peripheral vasoconstriction, and activation of the renin–angiotensin–aldosterone system to maintain blood pressure and perfusion. 3. Progressive stage (Stage 3) – Worsening tissue hypoxia and metabolic acidosis. 4. Irreversible stage (Stage 4) – Multi-organ failure and death. Now reviewing other options: 1. (A) is false because anaerobic respiration produces lactic acid, not carbon dioxide. 2. (B) is incorrect in general classification; hypovolemic shock is often cited as the most common overall, though septic shock is the most common distributive type. 3. (D) is false because anaphylactic shock is due to a Type I (IgE-mediated) hypersensitivity reaction, not Type II. Thus, the correct statement is (C).

Question 105. What treatment measures should be included for a patient who presents with significant abdominal fluid accumulation and has been diagnosed with

pancreatic necrosis? 1. Antibiotics IV 2. IV fluids 3. Culture 4. MRI 5. Assisted drainage 6. Laparotomy

A. 1,2,3,4 and 5

B. 2,4,5 and 6

C. 1,2,3 and 5

D. 1,2,3,4,5 and 6

Correct answer: D

1,2,3,4,5 and 6 The correct answer is (D) 1, 2, 3, 4, 5 and 6. Pancreatic necrosis is a severe complication of acute pancreatitis and requires comprehensive management. 1. IV antibiotics are indicated if infected pancreatic necrosis is suspected or confirmed. Broad-spectrum antibiotics covering gut flora are used. 2. IV fluids are essential in all cases to maintain hemodynamic stability and prevent organ failure. Aggressive fluid resuscitation is a cornerstone of early management. 3. Culture of aspirated fluid helps confirm infection and guides antibiotic therapy. Fine needle aspiration may be done if infection is suspected. 4. MRI (or contrast-enhanced CT) helps assess the extent of necrosis and complications such as fluid collections or abscess formation. 5. Assisted drainage (percutaneous or endoscopic) is used for infected collections or symptomatic fluid accumulation. 6. Laparotomy (surgical necrosectomy) may be required in cases not responding to minimally invasive management or in extensive infected necrosis. Thus, management of pancreatic necrosis may include all the listed measures, making option (D) correct.

Question 106. Which of the following statements is accurate concerning split-thickness and full-thickness skin grafts? 1. Primary contractures are more in split- thickness skin grafts Click Here to Buy book on Amazon page 381 INICET Examination Paper

A. Biopsy

B. Start ATT after laparotomy stricture removal

C. Start anti-tubercular therapy

D. Conservative management

Correct answer: C

Start anti-tubercular therapy The patient presents with a constellation of findings that are highly suggestive of disseminated tuberculosis (TB). The constitutional symptoms (fever, malaise, weight loss), respiratory symptoms, and ascites, combined with a suggestive chest radiograph (e.g., showing hilar adenopathy or an infiltrate), point towards a systemic TB infection. The diagnosis of tuberculous peritonitis (the cause of the ascites) is strongly supported by the elevated adenosine deaminase (ADA) level in the ascitic fluid; a high ADA is a very sensitive and specific marker for TB in this context, especially in high-prevalence areas. Given the overwhelming clinical, radiological, and biochemical evidence, the most appropriate

next step is to start empirical anti-tubercular therapy (ATT) promptly. Delaying treatment while awaiting definitive culture results (which can take weeks) would put the patient at risk of significant morbidity and mortality.

Question 107. What is the primary cause of severe malnutrition among the options provided below?

A. Pancreatic fistula

B. Duodenal fistula

C. Distal ileal fistula

D. Colonic fistula

Correct answer: C

Distal ileal fistula Severe malnutrition is most likely when there is loss of absorptive surface or significant nutrient-rich intestinal effluent. The distal ileum plays a crucial role in: 1. Absorption of vitamin B12 2. Reabsorption of bile salts 3. Absorption of fats and fat-soluble vitamins (A, D, E, K) 4. Significant fluid and electrolyte absorption : A distal ileal fistula leads to continuous loss of bile salts and nutrients, causing fat malabsorption, steatorrhea, diarrhea, and electrolyte imbalance. Loss of bile salts further impairs fat digestion, worsening nutritional deficiency. Chronic losses result in protein-energy malnutrition and vitamin deficiencies. In comparison: 5. Pancreatic fistula mainly causes enzyme loss but can often be managed with supplementation. 6. Duodenal fistula causes fluid and electrolyte loss but does not affect the primary site of B12 and bile salt absorption. 7. Colonic fistula mainly results in water and electrolyte loss; the colon is not a major site of nutrient absorption. Because the distal ileum is essential for critical nutrient absorption, a fistula at this site most significantly predisposes to severe malnutrition. Therefore, the correct answer is (C) Distal ileal fistula.

Question 108. Which nerve is likely to be affected when a patient develops loss of sensation over the root of the penis following an open hernia surgery?

A. Iliohypogastric nerve

B. Ilioinguinal nerve

C. Genitofemoral nerve

D. Medial cutaneous nerve to thigh

Correct answer: B

Ilioinguinal nerve During an open inguinal hernia repair, several nerves that traverse the inguinal region are at risk of injury or entrapment. The ilioinguinal nerve runs along the spermatic cord within the inguinal canal. It provides sensory innervation to the skin over the pubic symphysis, the upper part of the medial thigh, and, crucially, the skin over the root of the penis and the anterior scrotum in males. Therefore, damage to the ilioinguinal nerve is the classic cause of numbness or altered sensation in this specific distribution post-surgery. The iliohypogastric nerve (A) supplies the skin over the suprapubic region. The genital branch of the

genitofemoral nerve (C) supplies the cremaster muscle and scrotal skin, but its territory is more lateral.

Question 109. A 25-year-old woman presents with a breast lump showing no skin changes or induration, and histology confirms a fibroadenoma. This lesion would fall under which BI-RADS classification?

A. BI-RADS 1 and 2

B. BI-RADS 2 or 4

C. BI-RADS 2, 3, 4

D. BI-RADS 2

Correct answer: D

BI-RADS 2 The BI-RADS (Breast Imaging Reporting and Data System) is a standardized system for classifying imaging findings. A fibroadenoma is a common benign breast tumor. When a breast lesion on mammography or ultrasound has classic, unequivocally benign features (e.g., circumscribed, oval, wider-than-tall), it is categorized as BI-RADS 2: Benign Finding. This category indicates there is a 0% probability of malignancy and that routine screening is all that is required. Since the question states that histological analysis has already confirmed a benign fibroadenoma, the corresponding imaging finding would have been classified as BI-RADS 2. BI-RADS 1 is a negative exam. BI-RADS 3 is "probably benign" and requires short-term follow-up. BI-RADS 4 is "suspicious" and requires biopsy.

Question 110. A patient develops severe abdominal pain two days after an appendectomy, and an exploratory procedure reveals an intra-abdominal blood collection. Which artery, if inadequately ligated during the original operation, is most likely the source of the bleeding?

A. Ileocolic artery

B. Right colic artery

C. Superior rectal artery

D. Superior mesenteric artery

Correct answer: A

Ileocolic artery The appendix receives its blood supply from the appendicular artery. This artery is an end-artery that arises from the ileocolic artery, which is one of the main branches of the superior mesenteric artery (D). During an appendectomy, a critical step is the ligation of the mesoappendix, which contains the appendicular artery and vein. Postoperative hemorrhage is a known complication that typically results from a slipped ligature on the appendicular artery stump. Because the appendicular artery is a direct branch of the ileocolic artery, a poorly placed or insecure ligature could compromise the ileocolic artery itself, or the bleeding could originate from the stump of the appendicular artery where it branches from the ileocolic. Among the choices, the ileocolic artery is the most proximate and relevant parent vessel to the

appendix.

Question 111. What are the accurate characteristics of gall bladder carcinoma?

A. Palpable abdominal lump is the earliest sign

B. Median survival is 6 months

C. Earliest sign is jaundice

D. Clinical presentation of gallstones can be distinguished from gallbladder cancer

Correct answer: B

Median survival is 6 months Gallbladder carcinoma is a highly aggressive cancer with a dismal prognosis, primarily because it is usually diagnosed at a very late stage. The early symptoms are vague and non-specific, often mimicking those of cholelithiasis (gallstones), making it nearly impossible to distinguish between the two based on clinical presentation alone (D is incorrect). By the time more specific signs develop, such as a palpable abdominal lump (A) or obstructive jaundice (C), the cancer is typically advanced, having invaded the liver or biliary tree, and is often unresectable. Due to this late diagnosis and the tumor's aggressive biology, the overall prognosis is extremely poor. The median survival from the time of diagnosis is widely reported to be only around 6 months, with 5-year survival rates in the single digits. This grim statistic is a key characteristic of the disease.

Question 112. Which of the following options does not fall under the category of damage control surgery?

A. Control of hemorrhage

B. Resuscitation

C. Decontamination

D. Vascular anastomosis

Correct answer: D

Vascular anastomosis Damage control surgery (DCS) is a life-saving strategy for profoundly injured trauma patients who are in a state of physiological collapse (the "lethal triad" of acidosis, hypothermia, and coagulopathy). The initial surgery is deliberately abbreviated to address only immediate life threats. The core principles of the initial operation are rapid control of hemorrhage (A) (e.g., packing the abdomen) and control of contamination (C) from bowel injuries (e.g., stapling off bowel ends). This is performed alongside ongoing massive resuscitation (B). Definitive, complex, and time-consuming reconstructive procedures are postponed. A formal vascular anastomosis (D) is a definitive repair that would not be performed during the initial damage control phase. Instead, a temporary vascular shunt might be placed to restore blood flow quickly, with the formal repair planned for a subsequent operation after the patient has been stabilized in the ICU.

Question 113. Which of the following statements is true about gastric carcinoma?

A. It is mostly hereditary

B. E-cadherin adhesion defect is seen in diffuse type of gastric carcinoma (CA)

C. Wnt signaling pathway defect is seen in intestinal-type gastric carcinoma

D. Depth of cancer has no role in prognosis

Correct answer: B

B,C (A) False. While hereditary syndromes exist, the vast majority (>90%) of gastric cancers are sporadic, linked to environmental factors like H. pylori infection and diet. (B) True. The diffuse type of gastric cancer is characterized by poorly cohesive, infiltrating cells (often signet-ring cells). This is strongly associated with mutations in the CDH1 gene, which codes for the cell adhesion molecule E-cadherin. Loss of E-cadherin function leads to this dis cohesive growth pattern. (C) True. The intestinal-type of gastric cancer, which forms glands, often develops through a different pathway that frequently involves mutations in the APC gene and activation of the Wnt signaling pathway, a pathway also commonly implicated in colorectal cancer. (D) False. The depth of tumor invasion (T stage) is one of the most critical prognostic factors in gastric cancer. The deeper the tumor penetrates the stomach wall, the worse the prognosis.

Question 114. Match the following clinical conditions with the appropriate biopsy method. a. Marjolin ulcer over the dorsum of foot measur- ing 3 cm x 2 cm 1. Core needle biopsy. b. Cervical lymph node in the neck measuring 1.5 cm 2. USG guided FNAC c. Sarcoma involving the soft tissues of the mid- dle thigh 3. Wedge bi- opsy. d. Solitary thyroid nodule 4. Excision bi- opsy.

A. a-1, b-2, c-3, d-4

B. a-3, b-4, c-1, d-2

C. a-3, b-2, c-1, d-4 NODIA MEDINK b. Ventilation-perfusion scan c. Thermodilution d. Fick's principle

D. a,c,d

Correct answer: D

a,c,d Cardiac output (CO) is the amount of blood pumped by the heart per minute. Several methods can measure or estimate it. a. Echocardiography (ECHO) is a non-invasive method that can estimate CO by measuring stroke volume (the volume of blood pumped with each beat) using Doppler and multiplying it by the heart rate. c. Thermodilution is the gold standard invasive technique, typically using a pulmonary artery (Swan-Ganz) catheter. It involves injecting a cold saline bolus and measuring the resultant temperature change downstream to calculate blood flow. d. The Fick principle is a classic physiological method for calculating CO based on the body's oxygen consumption and the difference in oxygen content between arterial and mixed venous blood. b. A Ventilation-perfusion (V/Q) scan is a nuclear medicine test used to assess air and blood flow in the lungs, primarily to diagnose a pulmonary embolism. It does not measure cardiac output.

Question 115. A patient presents with multiple chest stab injuries and shows decreased movement on the right side of the chest, leftward tracheal deviation, and neck vein distension. What is the most appropriate first step in managing this condition?

A. Resuscitative thoracotomy

B. ICD placement

C. Needle thoracocentesis

D. Finger thoracotomy

Correct answer: C

Needle thoracocentesis The patient's signs—unilateral decreased breath sounds, contralateral tracheal deviation, and jugular venous distention—are the classic clinical triad for a tension pneumothorax. This is a true medical emergency where air accumulates in the pleural space, collapsing the lung and shifting the mediastinum, which obstructs venous return to the heart, leading to obstructive shock. The immediate, life-saving priority is to decompress the pleural space. The fastest and most appropriate initial intervention is needle thoracocentesis (needle decompression). This involves inserting a large-bore cannula into the pleural space (typically the 2nd intercostal space, midclavicular line) to release the trapped air and relieve the tension. This temporizing measure is then followed by the definitive placement of a chest tube (ICD) (B).

Question 116. Match the following suture materials with their appropriate surgical use. a. Nylon 3-0 1. Bowel anastomo- sis b. Polyglactin 2. Suturing linea alba in the mid- line c. Polypropylene 1-0 3. Midline laparot- omy skin wound closure d. Polypropylene 2-0 4. Fixing mesh in hernia surgery

A. a-4, b-1, c-4, d-2

B. a-3, b-1, c-4, d-2

C. a-3, b-1, c-2, d-4

D. a-1, b-4, c-3, d-4

Correct answer: B

a-3, b-1, c-4, d-2 Let’s match each suture material with its most appropriate surgical use: a. Nylon 3-0 → 3. Midline laparotomy skin wound closure Nylon is a non-absorbable monofilament suture commonly used for skin closure because it causes minimal tissue reaction and is easy to remove. b. Polyglactin → 1. Bowel anastomosis Polyglactin (Vicryl) is an absorbable braided suture. It is ideal for bowel anastomosis because it provides adequate strength during healing and then gets absorbed, reducing long-term foreign body reaction. c. Polypropylene 1-0 → 4. Fixing mesh in hernia surgery Polypropylene (Prolene) is a non-absorbable monofilament suture with high tensile strength, making it suitable for mesh fixation in hernia repair. d. Polypropylene 2-0 → 2. Suturing linea alba in the midline For fascial closure such as the linea alba, a strong non-absorbable suture like polypropylene is preferred to prevent wound dehiscence. Thus, the

correct matching is a-3, b-1, c-4, d-2, which corresponds to Option (B). PEDIATRICS

Question 117. What is necessary for the cannulation of a newborn? 1. 22G needle 2. 24G needle 3. 5-mL syringe 4. Adhesive tape 5. Normal saline

A. 1,3,4,5

B. 2,3,4,5

C. 2,4

D. 1,4

Correct answer: B

2,3,4,5 Performing intravenous cannulation on a newborn requires specific equipment due to their small size and fragile veins. (2) A 24G needle (catheter) is the most common and appropriate size for a neonate. A 22G needle (1) is usually too large. (3) A small syringe, such as a 5-mL syringe, is needed to flush the line to confirm patency. (4) Adhesive tape and a transparent dressing are essential to securely fix the cannula to the skin and prevent it from dislodging. (5) The syringe must be filled with a sterile flushing solution, with normal saline being the standard choice. Therefore, a 24G cannula, a syringe, securing tape, and normal saline are all necessary components for the procedure.

Question 118. What is an appropriate alternative to breast milk for low-birth-weight (LBW) infants?

A. Cow's milk

B. Preterm formula

C. Term formula

D. Human donor milk

Correct answer: B

Preterm formula For low-birth-weight (LBW) infants—especially those born preterm—nutritional requirements are higher than those of term infants. They require increased calories, protein, calcium, phosphorus, and micronutrients to support rapid growth and organ development. While mother’s own breast milk is the best option, if it is unavailable, the preferred alternative is preterm formula. Preterm formula is specifically designed to meet the higher nutritional needs of LBW and preterm infants. It contains: 1. Higher caloric density 2. Increased protein content 3. More calcium and phosphorus for bone mineralization 4. Additional vitamins and minerals Cow’s milk is not suitable due to high protein and renal solute load. Term formula does not provide adequate nutrients for preterm/LBW infants. Human donor milk is preferred over formula when available, but if unavailable, preterm formula is the appropriate substitute. Thus, when breast milk is not available, the correct alternative for LBW infants is preterm formula.

Question 119. What is the approximate estimated glomerular filtration rate (eGFR) for a 4-year-old boy weighing 15 kg and 100 cm tall, admitted with renal failure and

laboratory values showing a blood urea of 100 mg/dL and serum creatinine of 1 mg/dL?

A. 33 ml/min/1.73 m² BSA

B. 40 ml/min/1.73 m² BSA

C. 55 ml/min/1.73 m² BSA

D. 80 ml/min/1.73 m² BSA

Correct answer: B

40 ml/min/1.73 m² BSA In children, the estimated Glomerular Filtration Rate (eGFR) is commonly calculated using the Bedside Schwartz formula: eGFR = (k × Height in cm) / Serum Creatinine (mg/dL) The constant 'k' is age-dependent. For a child aged 2-12 years, the constant k is 0.55. (Note: Older formulas used 0.413, which also yields a similar result). Using the standard k value of 0.55: Height = 100 cm Serum Creatinine = 1 mg/dL eGFR = (0.55 × 100) / 1 = 55 ml/min/1.73 m² Using the older constant k of 0.413: eGFR = (0.413 × 100) / 1 = 41.3 ml/min/1.73 m² Given the options, 40 ml/min/1.73 m² is a closer approximation to the result from the older, more commonly tested formula. Both calculations indicate significant renal impairment.

Question 120. Which statement is accurate concerning urinary tract infections (UTIs) in children? 1. Most common cause of UTI is Streptococcus pneumoniae. 2. Bowel bladder dysfunction increases the risk of recurrence. 3. Cotrimoxazole is not given. 4. Micturating cystourethrogram (MCU) is done in children with a recurrence of UTI.

A. 1,3,4

B. 2,4

C. 2,3,4

D. 1,4

Correct answer: B

2,4 1. Incorrect. The most common bacterial cause of UTIs in children is Escherichia coli, an enteric Gram-negative rod. S. pneumoniae causes respiratory infections and meningitis. 2. Correct. Bowel and bladder dysfunction (including constipation and dysfunctional voiding patterns) is a major identified risk factor for recurrent UTIs in children. 3. Incorrect. Cotrimoxazole (trimethoprim-sulfamethoxazole) is a commonly used antibiotic for both treatment and prophylaxis of UTIs in children, although its use is guided by local bacterial resistance patterns. 4. Correct. A micturating cystourethrogram (MCU), also known as a voiding cystourethrogram (VCUG), is an imaging study performed to look for vesicoureteral reflux (VUR). Current guidelines recommend considering an MCU for children with recurrent febrile UTIs.

Question 121. What would you do when a child presents with sudden worsening of asthma symptoms? 1. Chest X-ray 2. Oxygen administration 3. Salbutamol

nebulization three times in 60 minutes 4. Administration of oral corticosteroids

A. 3,4,1

B. 1,2,3

C. 1,3,4

D. 2,3,4

Correct answer: D

2,3,4 The management of an acute asthma exacerbation is focused on three main goals: correcting hypoxemia, reversing bronchospasm, and reducing inflammation. (2) Oxygen administration is essential for any child presenting with hypoxia (low oxygen saturation) to prevent complications. (3) Inhaled short-acting beta-agonists, like salbutamol, are the first-line treatment for relieving bronchospasm. Giving repeated or continuous doses (e.g., three nebulizations in the first hour) is standard for moderate-to-severe exacerbations. (4) Systemic corticosteroids (oral or IV) are critical for treating the underlying airway inflammation that drives the exacerbation and should be given early. (1) A chest X-ray is not a routine part of asthma management. It is only indicated if there is a specific concern for an alternative diagnosis or a complication, such as pneumonia or pneumothorax. Therefore, the core initial interventions are oxygen, salbutamol, and corticosteroids.

Question 122. Which of the following factors are associated with a higher likelihood of febrile seizure recurrence? 1. Age <1 year NODIA page 387 INICET Examination Paper 162. What are the increased risks in newborns when a pregnant mother takes SSRIs (Selective Serotonin Reuptake Inhibitors)? 1. Low APGAR score 2. ADHD 3. Persistent pulmonary hypertension 4. Delayed developmental milestones

A. 1,3

B. 1,2,3,4

C. 2,3,4

D. 1,2,3

Correct answer: A

1,3 Use of Selective Serotonin Reuptake Inhibitors (SSRIs) during the third trimester of pregnancy is associated with certain neonatal risks. 1. Poor Neonatal Adaptation Syndrome (PNAS): This is a transient syndrome of withdrawal or toxicity that can include symptoms like jitteriness, irritability, and respiratory distress, potentially leading to a low APGAR score. 3. Persistent Pulmonary Hypertension of the Newborn (PPHN): Several studies have shown a small but statistically significant increased risk of this serious condition, where the baby's circulation doesn't adapt properly after birth, leading to severe hypoxemia. The evidence for a causal link between in-utero SSRI exposure and later diagnoses of ADHD (2) or major developmental delays (4) is inconsistent and controversial, with many studies showing no definitive association after accounting for confounding factors like the underlying maternal psychiatric illness. The

most clearly established risks are PNAS and PPHN. 163. A 25-year-old woman developed heavy bleeding, visual disturbances, and a severe headache one day after an uncomplicated vaginal delivery. She later became unresponsive and required intubation and ventilation. Her vital signs showed hypotension (60/40 mmHg), tachycardia, and hypoglycemia (48 mg/dL), while her hematocrit and WBC count were normal. Which medication would most effectively reverse her condition? (A) Inj. dobutamine (B) Steroids (C) Thyroxine (D) Activated protein C AAns (B) Steroids This clinical scenario is a classic presentation of Sheehan's syndrome, or postpartum pituitary apoplexy/necrosis. The sequence of a significant postpartum hemorrhage followed by signs of cardiovascular collapse (shock), neurological symptoms (headache, visual changes, coma), and metabolic derangement (hypoglycemia) points to acute panhypopituitarism. The pituitary gland, which enlarges during pregnancy, is vulnerable to infarction from severe hypotension. The most immediate life-threatening consequence is the loss of ACTH secretion, leading to an acute secondary adrenal crisis. This causes refractory hypotension and hypoglycemia. The most critical and life-saving intervention is the immediate administration of high-dose intravenous steroids (e.g., hydrocortisone) to replace the missing cortisol. This will treat the adrenal crisis and help stabilize the blood pressure. 164. Which of the following statements is NOT true about magnesium sulfate ($MgSO_4$)? (A) $MgSO_4$ causes uterine relaxation, but is dose dependent (B) $MgSO_4$ is continued up to 24 hours after delivery or the last seizure (C) It has an inhibitory effect on the cerebral cortex, thereby preventing seizures and lowering the BP (D) In renal failure, $MgSO_4$ loading dose can be given, but the maintenance dose should be adjusted based on renal function AAns (C) It has an inhibitory effect on the cerebral cortex, thereby preventing seizures and lowering the BP This statement contains multiple inaccuracies. The exact antiseizure mechanism of magnesium sulfate is not fully understood, but it is not believed to be a primary cortical depressant like a sedative. It is thought to act centrally by blocking NMDA receptors and causing cerebral vasodilation, and peripherally by decreasing acetylcholine release at the neuromuscular junction. Furthermore, while it does have a modest effect on blood pressure through vasodilation, it is considered a weak antihypertensive agent. Its primary purpose in eclampsia is seizure prophylaxis and treatment, not blood pressure control. The other statements are correct: it is a tocolytic that causes uterine relaxation (A); it is typically continued for 24 hours postpartum (B); and because it is renally excreted, the maintenance dose must be adjusted in renal failure (D). 165. Which of the following is NOT a theory of causation of preeclampsia? (A) Prostaglandins play an important role. Thromboxane A2 decreases; Prostacyclin: Thromboxane ratio increases in preeclampsia (B) Endothelial cell dysfunction leads to reduced nitric oxide levels and this causes the clinical presentation of preeclampsia (C) Vasoconstriction leads to ischemia, necrosis, and hemorrhage and end-organ damage seen in preeclampsia (D) Anti-angiogenic factors play an important role in preeclampsia. There is an increase in sFlt-1 and a decrease in PlGF AAns (A) Prostaglandins play an important role. Thromboxane A2 decreases; Prostacyclin:

Thromboxane ratio increases in preeclampsia 166. In a pregnant female, which of the following cerclage procedures would be performed? (A) Lash and Lash cerclage (B) Benson and Durfee cerclage (C) Wurms cerclage (D) Laparoscopic cerclage AAns (B) Benson and Durfee cerclage Cerclage procedures are performed to treat cervical incompetence, which can lead to recurrent mid-trimester pregnancy losses or preterm birth. The timing of the procedure is important. Benson and Durfee cerclage is a transabdominal cerclage procedure. It is usually performed during pregnancy (often in the late first trimester or early second trimester) when transvaginal cerclage is not feasible or has previously failed. It may also be done pre-pregnancy, but it is specifically known as an abdominal cerclage that can be performed in pregnant women. In contrast: 1. Lash and Lash cerclage is done before pregnancy (interval cerclage) and is not typically performed during pregnancy. 2. Wurm's cerclage is not a standard procedure used for cervical incompetence. 3. Laparoscopic cerclage can be performed, but it is usually done as an interval procedure before conception, though it may also be done early in pregnancy in selected cases. Therefore, among the options provided, the cerclage procedure performed in a pregnant female is Benson and Durfee cerclage. 167. How would you most appropriately characterize a urinary tract infection (UTI) in a woman who is in her second trimester of pregnancy? (A) Growth of 10 3 coliform in a suprapubic sample (B) Growth of 10 5 coliform in a voided urine sample (C) Frequency with dysuria with >3 WBC/HPF (D) Frequency with dysuria with positive nitrite and leukocyte esterase dipstick test AAns (B) Growth of 10 5 coliform in a voided urine sample In pregnancy, both symptomatic UTIs and asymptomatic bacteriuria (ASB) are treated to prevent complications like pyelonephritis and preterm birth. The diagnosis rests on a quantitative urine culture. The accepted definition of significant bacteriuria in a pregnant woman, whether symptomatic or not, is the presence of at least 100,000 (10 5) colony-forming units (CFU) per mL of a single uropathogen in a clean-catch, midstream voided urine sample. While symptoms and dipstick results (C, D) are suggestive, they are not diagnostic. A suprapubic aspirate (A) is rarely performed, but in that sterile sample, any growth is considered significant. For routine screening and diagnosis, the threshold of 10 5 CFU/mL from a voided specimen is the definitive standard that mandates treatment in pregnancy. 168. Which of the following statements about uterine innervation is incorrect? (A) Sensory level is from T10 to L1 (B) Uterine contractility is mediated by innervation from levels T7-T8 (C) In the 1st stage of labor, pain is due to fibers at the level of T10-L1 (D) In early labor, pain is usually due to uterine contractions AAns (B) Uterine contractility is mediated by innervation from levels T7-T8 This statement is inaccurate. Uterine contractions during labor are primarily driven by hormones, especially oxytocin, and local factors like prostaglandins. The autonomic nervous system modulates the contractions but does not mediate (initiate) them. Furthermore, the sympathetic innervation that influences the uterus originates from a broader range of spinal levels, typically T5 to L2, not specifically T7-T8. The other statements are correct. The visceral pain from uterine contractions and cervical dilation during the first stage of labor is transmitted by afferent fibers

that accompany the sympathetic nerves and enter the spinal cord between T10 and L1 (A and C are both correct). This pain is indeed caused by the uterine contractions themselves (D). 169. Which of the following is included in the modified biophysical profile (BPP)? (A) NST and fetal tone (B) NST and AFI (C) NST and breathing movements (D) NST and gross fetal movements AAns (B) NST and AFI The full biophysical profile (BPP) is an antenatal test for fetal well-being that assesses five components: fetal breathing, gross body movements, fetal tone, amniotic fluid volume, and a non-stress test (NST). The modified biophysical profile (mBPP) is a simplified, yet effective, screening version of the full test. It combines just two key elements: the Non-Stress Test (NST) and the Amniotic Fluid Index (AFI). The NST is a short-term marker of fetal acid-base status and neurologic integrity, reflecting acute oxygenation. The AFI is considered a long-term marker of placental function, as adequate amniotic fluid depends on fetal urine production, which in turn depends on adequate renal perfusion over time. An abnormal result on either component of the mBPP necessitates further evaluation with a full BPP or other testing.

Question 123. For a child with thalassemia who receives regular blood transfusions, what is the most effective method to monitor the development of iron overload?

A. Liver iron concentration

B. MRI T2\ myocardium

C. Serum ferritin

D. NTBI (Non-transferrin-bound iron)

Correct answer: A

Liver iron concentration Chronic blood transfusions inevitably lead to iron overload (hemosiderosis), as the body has no physiological mechanism to excrete excess iron. Monitoring this iron burden is crucial to guide chelation therapy and prevent organ damage. While serum ferritin (C) is the most commonly used screening test, it is an acute-phase reactant and can be elevated by inflammation, making it an unreliable quantitative marker. The gold standard for assessing total body iron stores is the liver iron concentration (LIC) (A), which can be measured directly via biopsy or, more commonly now, non-invasively and accurately using specialized MRI techniques (R2 or T2\). The most life-threatening complication of iron overload is cardiac siderosis leading to heart failure. MRI T2\ of the myocardium (B) is the best method to specifically quantify cardiac iron, which is the strongest predictor of mortality. However, LIC remains the best overall measure of total body iron stores.

Question 124. What is the probable diagnosis in a child who persistently wears socks even in warm weather because of cold feet, has lower limb pulses weaker than the radial pulse, and shows a clear radio-femoral delay?

A. There is hypertrophy of ductus arteriosus

B. Coarctation distal to the origin of the left subclavian artery

C. Supply is from the posterior to the anterior thoracic artery

D. Collaterals develop to supply the upper limb

Correct answer: B

Coarctation distal to the origin of the left subclavian artery This clinical presentation is the classic textbook description of coarctation of the aorta. This congenital heart defect involves a narrowing of the aorta, most commonly in the juxtaductal position, i.e., just distal to the origin of the left subclavian artery (B). This stenosis obstructs blood flow to the lower part of the body. Consequently, blood pressure is high in the vessels proximal to the coarctation (supplying the arms), leading to strong or bounding radial pulses. Distal to the narrowing, blood flow is reduced, causing low blood pressure, weak or absent femoral pulses, and symptoms like cold feet. The difference in arrival time of the pulse wave between the upper and lower limbs creates the pathognomonic radio-femoral delay. Over time, collateral arteries develop to bypass the blockage and supply the lower body, not the upper limbs (D).

Question 125. Which vaccine among the following is generally not recommended before performing a splenectomy in a 10-year-old child with hereditary spherocytosis and hypersplenism?

A. Pneumococcal vaccine

B. Typhoid vaccine

C. Haemophilus influenzae B vaccine

D. Meningococcal vaccine

Correct answer: B

Typhoid vaccine Patients undergoing splenectomy are at a lifelong increased risk for overwhelming sepsis from encapsulated bacteria. Therefore, pre-splenectomy immunization is critical and should target these specific pathogens. The standard recommendations include vaccination against: (A) Streptococcus pneumoniae, the most common cause of post-splenectomy sepsis, using the pneumococcal conjugate and polysaccharide vaccines. (C) Haemophilus influenzae type b, using the Hib vaccine. (D) Neisseria meningitidis, using the meningococcal conjugate vaccine. (B) These should ideally be administered at least two weeks before the planned surgery. While the typhoid vaccine is important for travel to endemic regions, it is not part of the routine vaccination protocol specifically for preventing post-splenectomy sepsis, as Salmonella Typhi is not a primary encapsulated organism of concern in this context.

Question 126. A child is brought to the emergency department after a choking episode, and examination shows diminished air entry on the left side. What is the most suitable initial diagnostic or management step in this situation? 1. Bronchoscopy 2. Computed tomography scan 3. ICD insertion 4. Chest X-ray

A. 1, 2, and 4

B. 1 and 2

C. 3 and 4

D. 1 and 4

Correct answer: D

1 and 4 A history of a choking episode followed by unilateral respiratory signs (reduced airflow) is highly suspicious for foreign body aspiration. The diagnostic and management pathway is well-established. (4) The first step is typically a chest X-ray, which may show the foreign body if it is radiopaque, or indirect signs like unilateral hyperinflation (air trapping) or atelectasis. (1) Regardless of the X-ray findings (which can be normal), the gold standard for both diagnosis and removal of a suspected tracheobronchial foreign body in a child is bronchoscopy. Rigid bronchoscopy is the preferred modality as it secures the airway and allows for better instrumentation for removal. A CT scan (2) may be considered in stable patients with an equivocal history and imaging but is not the primary intervention. ICD insertion (3) is for a pneumothorax. Therefore, chest X-ray and bronchoscopy are the key interventions. ORTHOPEDICS

Question 127. Which of the following statements accurately describe Psoas abscess? 1. Fluctuant swelling in the hip 2. Cold abscess can develop from Pott's abscess 3. Pain on passive extension of the hip joint is seen 4. It develops more commonly through hematogenous route in immunocompromised patients and elderly

A. 1 and 2

B. 1,3 and 4

C. 1,2,3 and 4

D. 2,3 and 4

Correct answer: D

2,3 and 4 1. Incorrect. A psoas abscess tracks inferiorly along the psoas muscle sheath. If it becomes palpable externally, the fluctuant swelling typically presents in the inguinal region or the femoral triangle, not directly over the hip joint. 2. Correct. A secondary psoas abscess can result from the spread of infection from an adjacent structure, classically from vertebral osteomyelitis. Tuberculous spondylitis (Pott's disease) is a well-known cause, where a cold abscess from the spine tracks down into the psoas sheath. 3. Correct. Inflammation of the psoas muscle causes a flexion deformity of the hip. Any attempt to passively extend the hip stretches the inflamed muscle, causing exquisite pain. This is the "psoas sign," a key clinical finding. 4. Correct. A primary psoas abscess, which occurs without an adjacent source of infection, is thought to arise from the hematogenous spread of bacteria. This type is more common in immuno compromised individuals, intravenous drug users, and the elderly.

Question 128. Which nerve is most likely to be damaged in cases of anterior shoulder dislocation?

A. Axillary nerve

B. Median nerve

C. Radial nerve

D. Suprascapular nerve

Correct answer: A

Axillary nerve The axillary nerve is the most frequently injured nerve in an anterior dislocation of the shoulder. The nerve originates from the posterior cord of the brachial plexus and has a close anatomical relationship with the inferior aspect of the shoulder joint capsule as it courses around the surgical neck of the humerus. During an anterior-inferior dislocation, the humeral head is displaced, putting the axillary nerve under tension and at high risk for a traction injury or compression. A clinical examination after a shoulder dislocation must include an assessment of the axillary nerve. This is done by testing for motor function of the deltoid muscle (shoulder abduction) and sensory function over the "regimental badge" area on the lateral aspect of the shoulder.

Question 129. What are the increased risks in newborns when a pregnant mother takes SSRIs (Selective Serotonin Reuptake Inhibitors)? 1. Low APGAR score 2. ADHD 3. Persistent pulmonary hypertension 4. Delayed developmental milestones

A. 1,3

B. 1,2,3,4

C. 2,3,4

D. 1,2,3

Correct answer: A

1,3 Use of Selective Serotonin Reuptake Inhibitors (SSRIs) during the third trimester of pregnancy is associated with certain neonatal risks. 1. Poor Neonatal Adaptation Syndrome (PNAS): This is a transient syndrome of withdrawal or toxicity that can include symptoms like jitteriness, irritability, and respiratory distress, potentially leading to a low APGAR score. 3. Persistent Pulmonary Hypertension of the Newborn (PPHN): Several studies have shown a small but statistically significant increased risk of this serious condition, where the baby's circulation doesn't adapt properly after birth, leading to severe hypoxemia. The evidence for a causal link between in-utero SSRI exposure and later diagnoses of ADHD (2) or major developmental delays (4) is inconsistent and controversial, with many studies showing no definitive association after accounting for confounding factors like the underlying maternal psychiatric illness. The most clearly established risks are PNAS and PPHN.

Question 130. A 25-year-old woman developed heavy bleeding, visual disturbances, and a severe headache one day after an uncomplicated vaginal delivery. She later became unresponsive and required intubation and ventilation. Her vital signs showed hypotension (60/40 mmHg), tachycardia, and hypoglycemia (48 mg/dL),

while her hematocrit and WBC count were normal. Which medication would most effectively reverse her condition?

A. Inj. dobutamine

B. Steroids

C. Thyroxine

D. Activated protein C

Correct answer: B

Steroids This clinical scenario is a classic presentation of Sheehan's syndrome, or postpartum pituitary apoplexy/necrosis. The sequence of a significant postpartum hemorrhage followed by signs of cardiovascular collapse (shock), neurological symptoms (headache, visual changes, coma), and metabolic derangement (hypoglycemia) points to acute panhypopituitarism. The pituitary gland, which enlarges during pregnancy, is vulnerable to infarction from severe hypotension. The most immediate life-threatening consequence is the loss of ACTH secretion, leading to an acute secondary adrenal crisis. This causes refractory hypotension and hypoglycemia. The most critical and life-saving intervention is the immediate administration of high-dose intravenous steroids (e.g., hydrocortisone) to replace the missing cortisol. This will treat the adrenal crisis and help stabilize the blood pressure.

Question 131. Which of the following statements is NOT true about magnesium sulfate (MgSO 4)?

A. MgSO 4 causes uterine relaxation, but is dose dependent

B. MgSO 4 is continued up to 24 hours after delivery or the last seizure

C. It has an inhibitory effect on the cerebral cortex, thereby preventing seizures and lowering the BP

D. In renal failure, MgSO 4 loading dose can be given, but the maintenance dose should be adjusted based on renal function

Correct answer: C

It has an inhibitory effect on the cerebral cortex, thereby preventing seizures and lowering the BP This statement contains multiple inaccuracies. The exact antiseizure mechanism of magnesium sulfate is not fully understood, but it is not believed to be a primary cortical depressant like a sedative. It is thought to act centrally by blocking NMDA receptors and causing cerebral vasodilation, and peripherally by decreasing acetylcholine release at the neuromuscular junction. Furthermore, while it does have a modest effect on blood pressure through vasodilation, it is considered a weak antihypertensive agent. Its primary purpose in eclampsia is seizure prophylaxis and treatment, not blood pressure control. The other statements are correct: it is a tocolytic that causes uterine relaxation (A); it is typically continued for 24 hours postpartum (B); and because it is renally excreted, the maintenance dose must be adjusted in renal failure (D).

Question 132. Which of the following is NOT a theory of causation of preeclampsia?

A. Prostaglandins play an important role. Thromboxane A2 decreases; Prostacyclin: Thromboxane ratio increases in preeclampsia

B. Endothelial cell dysfunction leads to reduced nitric oxide levels and this causes the clinical presentation of preeclampsia

C. Vasoconstriction leads to ischemia, necrosis, and hemorrhage and end-organ damage seen in preeclampsia

D. Anti-angiogenic factors play an important role in preeclampsia. There is an increase in sFlt-1 and a decrease in PIGF

Correct answer: A

Prostaglandins play an important role. Thromboxane A2 decreases; Prostacyclin: Thromboxane ratio increases in preeclampsia

Question 133. In a pregnant female, which of the following cerclage procedures would be performed?

A. Lash and Lash cerclage

B. Benson and Durfee cerclage

C. Wurms cerclage

D. Laparoscopic cerclage

Correct answer: B

Benson and Durfee cerclage Cerclage procedures are performed to treat cervical incompetence, which can lead to recurrent mid-trimester pregnancy losses or preterm birth. The timing of the procedure is important. Benson and Durfee cerclage is a transabdominal cerclage procedure. It is usually performed during pregnancy (often in the late first trimester or early second trimester) when transvaginal cerclage is not feasible or has previously failed. It may also be done pre-pregnancy, but it is specifically known as an abdominal cerclage that can be performed in pregnant women. In contrast: 1. Lash and Lash cerclage is done before pregnancy (interval cerclage) and is not typically performed during pregnancy. 2. Wurm’s cerclage is not a standard procedure used for cervical incompetence. 3. Laparoscopic cerclage can be performed, but it is usually done as an interval procedure before conception, though it may also be done early in pregnancy in selected cases. Therefore, among the options provided, the cerclage procedure performed in a pregnant female is Benson and Durfee cerclage.

Question 134. How would you most appropriately characterize a urinary tract infection (UTI) in a woman who is in her second trimester of pregnancy?

A. Growth of 10 3 coliform in a suprapubic sample

B. Growth of 10 5 coliform in a voided urine sample

C. Frequency with dysuria with >3 WBC/HPF

D. Frequency with dysuria with positive nitrite and leukocyte esterase dipstick test

Correct answer: B

Growth of 10 5 coliform in a voided urine sample In pregnancy, both symptomatic UTIs and asymptomatic bacteriuria (ASB) are treated to prevent complications like pyelonephritis and preterm birth. The diagnosis rests on a quantitative urine culture. The accepted definition of significant bacteriuria in a pregnant woman, whether symptomatic or not, is the presence of at least 100,000 (10 5) colony-forming units (CFU) per mL of a single uropathogen in a clean-catch, midstream voided urine sample. While symptoms and dipstick results (C, D) are suggestive, they are not diagnostic. A suprapubic aspirate (A) is rarely performed, but in that sterile sample, any growth is considered significant. For routine screening and diagnosis, the threshold of 10 5 CFU/mL from a voided specimen is the definitive standard that mandates treatment in pregnancy.

Question 135. Which of the following statements about uterine innervation is incorrect?

A. Sensory level is from T10 to L1

B. Uterine contractility is mediated by innervation from levels T7-T8

C. In the 1st stage of labor, pain is due to fibers at the level of T10-L1

D. In early labor, pain is usually due to uterine contractions

Correct answer: B

Uterine contractility is mediated by innervation from levels T7-T8 This statement is inaccurate. Uterine contractions during labor are primarily driven by hormones, especially oxytocin, and local factors like prostaglandins. The autonomic nervous system modulates the contractions but does not mediate (initiate) them. Furthermore, the sympathetic innervation that influences the uterus originates from a broader range of spinal levels, typically T5 to L2, not specifically T7-T8. The other statements are correct. The visceral pain from uterine contractions and cervical dilation during the first stage of labor is transmitted by afferent fibers that accompany the sympathetic nerves and enter the spinal cord between T10 and L1 (A and C are both correct). This pain is indeed caused by the uterine contractions themselves (D).

Question 136. Which of the following is included in the modified biophysical profile (BPP)?

A. NST and fetal tone

B. NST and AFI

C. NST and breathing movements

D. NST and gross fetal movements

Correct answer: B

NST and AFI The full biophysical profile (BPP) is an antenatal test for fetal well-being that assesses five components: fetal breathing, gross body movements, fetal tone, amniotic fluid volume, and a non-stress test (NST). The modified biophysical profile (mBPP) is a simplified, yet

effective, screening version of the full test. It combines just two key elements: the Non-Stress Test (NST) and the Amniotic Fluid Index (AFI). The NST is a short-term marker of fetal acid-base status and neurologic integrity, reflecting acute oxygenation. The AFI is considered a long-term marker of placental function, as adequate amniotic fluid depends on fetal urine production, which in turn depends on adequate renal perfusion over time. An abnormal result on either component of the mBPP necessitates further evaluation with a full BPP or other testing.

Question 137. Which of the following is NOT a long-term reversible method of contraception?

A. Progestin injection

B. Progestin implants

C. Female sterilization

D. Levonorgestrel-releasing and copper- containing intrauterine devices

Correct answer: C

Female sterilization Female sterilization (e.g., tubal ligation) is a surgical procedure intended to provide permanent contraception. While surgical reversal is sometimes attempted, it is a complex procedure with a variable success rate and is not guaranteed. Therefore, it is not considered a reversible method of contraception. The other options are classified as Long-Acting Reversible Contraceptives (LARCs). Progestin implants (B) and intrauterine devices (IUDs) (D) provide highly effective contraception for 3 to 10 years, and fertility returns promptly upon their removal. Progestin injections (A) are shorter-acting (3 months) but are also fully reversible, although the return to fertility can be delayed for several months after the last injection.

Question 138. Which of the following statements about determining the period of gestation (POG) is incorrect?

A. 1st-trimester USG is the best assessment

B. Calculated from the last day of the last menstrual period

C. In an IVF pregnancy, day of embryo transfer/day of fertilization is needed to calculate POG

D. Crown-rump length is the best measure of the period of gestation in the first trimester

Correct answer: B

Calculated from the last day of the last menstrual period This statement is incorrect. By convention, the gestational age or period of gestation (POG) is calculated from the FIRST day of the woman's last menstrual period (LMP), not the last day. This is the basis of Naegele's rule for estimating the due date. The other statements are correct. A first-trimester ultrasound (USG) (A) is the most accurate method for dating a pregnancy, and the measurement used is the crown-rump length (CRL) (D). For pregnancies conceived through in-vitro fertilization (IVF) (C), the precise date of fertilization or embryo transfer is known, providing the most accurate gestational age determination, which overrides any LMP or ultrasound-based estimation.

Question 139. Which methods are used to evaluate contraceptive failure?

A. Pharmacological index

B. Pearl index

C. Performance index

D. Efficacy index

Correct answer: B

Pearl index The Pearl Index is the most common and historically significant statistical method used to measure the effectiveness and failure rate of a contraceptive method. It represents the number of unintended pregnancies that occur per 100 woman-years of use of a particular method. It is calculated with the formula: (Number of unintended pregnancies × 1200) / (Total months of use by all study subjects). A lower Pearl Index signifies a more effective contraceptive method with a lower failure rate. This standardized measure allows for the comparison of efficacy across different birth control options. The other terms listed are not standard epidemiological measures for contraceptive failure.

Question 140. Which of the following patients would be categorized as experiencing primary amenorrhea?

A. 11-year-old girl with Tanner stage 1 breasts

B. 14-year-old girl with Tanner stage 1 breasts

C. 13-year-old girl with Tanner stage 5 breasts

D. 12-year-old girl with Tanner stage 4 breasts

Correct answer: B

14-year-old girl with Tanner stage 1 breasts Primary amenorrhea is the failure of menarche to occur. A clinical evaluation is warranted if a girl meets either of two criteria: 1) no menstruation by age 15, regardless of sexual development, OR 2) no menstruation by age 13 in the complete absence of secondary sexual characteristics (like breast development). Tanner stage 1 represents the prepubertal state with no breast budding. Therefore, a 14-year-old girl with Tanner stage 1 breasts meets the second criterion, as she is past the age of 13 and has not yet begun pubertal development. The 11-year-old (A) is too young. The 12- and 13-year-old girls (D, C) are showing appropriate pubertal progression and have not yet reached the age of 15, so they do not meet the criteria for primary amenorrhea.

Question 141. The child of a woman who received diethylstilbestrol (DES) during pregnancy is at increased risk for which condition?

A. Squamous cell carcinoma

B. Clear cell carcinoma

C. Adenocarcinoma

D. Sarcoma botryoides

Correct answer: B

Clear cell carcinoma Diethylstilbestrol (DES) was a synthetic estrogen prescribed to pregnant women to prevent miscarriage from the 1940s to 1971. It was later found to be a potent teratogen. Female offspring exposed to DES in utero have a significantly increased risk of developing a rare cancer of the lower genital tract, specifically clear cell adenocarcinoma of the vagina and cervix. This cancer typically occurs in adolescence or early adulthood. While it is a type of adenocarcinoma (C), the specific and strongly associated histological subtype is clear cell. DES exposure is also linked to various non-cancerous structural abnormalities of the reproductive tract in both female and male offspring.

Question 142. Which of the following is NOT a cause of uterine dysfunction?

A. High fetal head station

B. Multiparity

C. Neuraxial block

D. Chorioamnionitis

Correct answer: B

Multiparity Uterine dysfunction, or dystocia, refers to ineffective uterine contractions that lead to a prolonged or arrested labor. Chorioamnionitis (D), an infection of the uterus, is a well-known cause of dysfunctional labor patterns. The use of a neuraxial block (epidural) (C) has been associated with a longer second stage of labor. A high fetal head station (A) despite adequate contractions suggests cephalopelvic disproportion, which can lead to a secondary arrest of labor. In contrast, multiparity (having had several previous births) is typically associated with more efficient and often more rapid labors. The uterus and birth canal have been "primed" by previous deliveries. While multiparity is a risk factor for postpartum hemorrhage due to uterine atony, it is not a cause of dysfunctional contractions during labor.

Question 143. Which of the following is NOT a characteristic of antepartum hemorrhage caused by placental abruption?

A. Uterine tenderness

B. Frequent contractions

C. Painless vaginal bleeding

D. Mild to moderate vaginal bleeding

Correct answer: C

Painless vaginal bleeding Placental abruption is the premature separation of a normally implanted placenta from the uterine wall before delivery. The classic and most distinguishing symptom is pain. The bleeding into the myometrium (uterine muscle) causes significant irritation, leading to uterine tenderness or a constant, board-like abdominal pain (A). This irritation also causes uterine hypertonus and frequent, high-frequency contractions (B). The amount of visible vaginal bleeding can vary from mild to severe and may not correlate with the degree of separation, as a large amount of blood can be concealed behind the placenta (D).

Painless vaginal bleeding, especially if the blood is bright red, is the hallmark sign of placenta previa, a condition where the placenta covers the cervical os.

Question 144. At 8 weeks of gestation, which signs can be identified in a woman's presentation? 1. Goodell's sign 2. Osiander's sign 3. Internal ballottement 4. Lightening

A. 1,3

B. 1,2

C. 1,4

D. 3,4

Correct answer: B

1,2 The question asks for probable signs of pregnancy that are present at 8 weeks. 1. Goodell's sign: This is the marked softening of the cervix, which is detectable by a pelvic exam from about 6-8 weeks of gestation. (Correct) 2. Osiander's sign: This refers to the increased pulsation felt in the lateral vaginal fornices due to increased blood flow. This can also be detected around 8 weeks. (Correct) 3. Internal ballottement: This is the palpable rebound of the fetus when the uterus is pushed during a vaginal exam. It is typically not elicited until 16-20 weeks, when the fetus is larger. 4. Lightening: This is the sensation of the fetal head "dropping" into the pelvis, which occurs in late pregnancy, usually a few weeks before labor begins. Therefore, only Goodell's sign and Osiander's sign are present at 8 weeks' gestation.

Question 145. Which of the following is NOT a non- contraceptive use of oral contraceptives?

A. Reduction in the risk of ovarian cancer

B. Improve bone density

C. Protection against sexually transmitted diseases, including HIV

D. Reduction in the risk of endometrial cancer

Correct answer: C

Protection against sexually transmitted diseases, including HIV Combined oral contraceptive pills (OCPs) offer numerous non-contraceptive health benefits. They are well-known to significantly reduce the lifetime risk of developing both ovarian cancer (A) and endometrial cancer (D). They are also widely used to manage menstrual disorders, such as dysmenorrhea and menorrhagia, and to treat conditions like acne and hirsutism. Some evidence suggests they can also help maintain or improve bone mineral density (B). However, it is a critical point of counseling that OCPs are a hormonal method and provide NO protection whatsoever against sexually transmitted diseases (STDs), including HIV. For STD prevention, barrier methods such as condoms must be used.

Question 146. A 16-year-old girl presents with primary amenorrhea, widely spaced

nipples, a webbed neck, Tanner stage 1 breast development, streak ovaries on ultrasound, high FSH and LH levels, and low estradiol. What is the most likely diagnosis?

A. Turner syndrome

B. Kallmann syndrome

C. Androgen insensitivity syndrome

D. Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome

Correct answer: A

Turner syndrome This constellation of findings is classic for Turner syndrome (45,X0 karyotype). The patient presents with primary amenorrhea due to ovarian failure (hypergonadotropic hypogonadism), which is confirmed by the finding of streak ovaries on ultrasound, low estradiol, and consequentially elevated FSH and LH due to lack of negative feedback. The lack of estrogen also explains the absence of secondary sexual development (Tanner stage 1 breasts). The physical features described—webbed neck and widely spaced nipples—are characteristic dysmorphic features of Turner syndrome. Kallmann syndrome (B) would have low FSH/LH. Androgen insensitivity syndrome (C) and MRKH syndrome (D) both present with normal breast development because estrogen production is normal. page 389 INICET Examination Paper

Question 147. Consider the following steps in the Active Management of the Third Stage of Labor (AMTSL). Place them in the correct sequence: 1. Uterine massage 2. Administer uterotonic (oxytocin 10 mg) 3. Check for additional fetuses 4. Perform controlled cord traction

A. 3,1,2,4

B. 3,2,4,1

C. 2,4,3,1

D. 2,4,1,3

Correct answer: B

3,2,4,1 Active Management of the Third Stage of Labor (AMTSL) is a crucial intervention to prevent postpartum hemorrhage. The components must be performed in a specific, rapid sequence immediately following the birth of the baby: 1. Check for additional fetuses: Immediately palpate the abdomen to rule out the presence of another baby before giving a uterotonic. (Step 3) 2. Administer uterotonic: If no other baby is present, administer oxytocin 10 IU IM within one minute of birth. (Step 2) 3. Perform controlled cord traction (CCT): Once the uterus is well-contracted, apply gentle downward traction on the cord while applying counter-traction on the uterine fundus to deliver the placenta. (Step 4) 4. Uterine massage: Immediately after the placenta is delivered, massage the uterine fundus to stimulate it to contract firmly and prevent atony. (Step 1) The correct sequence is 3 → 2 → 4 → 1.

Question 148. Which of the following is NOT a risk factor for vulval cancer?

A. Vulval dystrophy

B. Vulval hamartoma

C. Smoking

D. Vulval warts

Correct answer: B

Vulval hamartoma Risk factors for vulvar squamous cell carcinoma generally fall into two categories. One is related to high-risk Human Papillomavirus (HPV) infection, which is also associated with vulval warts (condyloma) (D) and is potentiated by smoking (C). The other category is HPV-independent and is associated with chronic inflammatory skin conditions of the vulva, known collectively as vulval dystrophies (A), with lichen sclerosus being the most common precursor lesion. A vulval hamartoma (B), however, is a benign, non-cancerous, disorganized growth of mature tissues that are normally found in the vulva. It is considered a developmental malformation, not a precancerous lesion, and is not a recognized risk factor for developing vulvar cancer.

Question 149. What is vagitus uterinus?

A. Cry of baby in the womb

B. Infection of vagina

C. Infection of uterus

D. Infection of both vagina and uterus

Correct answer: A

Cry of baby in the womb Vagitus uterinus is a Latin medical term where vagitus means "a crying or squalling" and uterinus means "of the uterus." It refers to the very rare phenomenon of a fetus audibly crying while still inside the uterus or during the process of birth, after the membranes have ruptured and air has entered the uterine cavity. This allows air to pass over the fetal vocal cords, producing a sound. It is a rare and often startling event that has been documented in medical literature, sometimes associated with fetal stimulation or distress. The other options are medical terms for infections: vaginitis (B), endometritis (C), or a combination thereof. DERMATOLOGY

Question 150. Which local anesthetic among the following leads to an increase in blood pressure?

A. Cocaine

B. Lignocaine

C. Bupivacaine

D. Prilocaine

Correct answer: A

Cocaine Cocaine is unique among local anesthetics. In addition to its primary action of blocking voltage-gated sodium channels to produce anesthesia, it also potently inhibits the reuptake of

catecholamines, particularly norepinephrine, at sympathetic nerve terminals. This sympathomimetic action leads to an excess of norepinephrine in the synaptic cleft, causing intense vasoconstriction. This is why cocaine is the only local anesthetic that does not require the addition of epinephrine. The systemic effects of this catecholamine excess include hypertension (an increase in blood pressure), tachycardia, and an increased risk of cardiac arrhythmias and myocardial ischemia. In contrast, most other local anesthetics, such as lignocaine (B) and bupivacaine (C), are vasodilators at clinically used concentrations. RADIOLOGY

Question 151. Match the following: 1. Football sign a. Hypertrophic py- loric stenosis 2. String sign b. Achalasia cardia 3. Rat tail sign c. Ileocecal TB 4. Inverted umbrel- la sign d. Pneumoperitone- um

A. 1-b, 2-d, 3-a, 4-c NODIA MEDINK INICET Examination Paper patients with traumatic brain injury, stroke, and other neurological emergencies to prevent secondary ischemic injury. What is the location of Macula densa located?

B. Junction of thick descending limb and PCT

C. Junction of thick ascending limb and DCT

D. Junction of DCT and collecting duct 18.

Correct answer: B

Promethazine The patient's symptom of sustained, involuntary upward deviation of the eyes is an oculogyric crisis, a form of acute dystonic reaction. This is a well-known extrapyramidal side effect of antipsychotic medications like risperidone. This is a medical emergency that requires immediate treatment. The first-line treatment is the parenteral administration of an anticholinergic agent (e.g., benztropine, biperiden) or a first-generation antihistamine with strong anticholinergic properties, such as diphenhydramine or promethazine. These drugs rapidly reverse the dystonic reaction. Lorazepam (A) may be used as an adjunctive agent for sedation and muscle relaxation but is not the primary treatment. Simply stopping the antipsychotic (D) or switching to another (C) will not resolve the acute crisis, which requires immediate pharmacological intervention. 198. Which of the following diseases is solely observed in females? (A) Rett syndrome (B) Asperger syndrome (C) Selective mutism (D) Atypical autism AAns (A) Rett syndrome Rett syndrome is a unique, X-linked dominant neurodevelopmental disorder that is observed almost exclusively in females. It is caused by mutations in the MECP2 gene. Because the gene is located on the X chromosome and the mutation is dominant, it is almost always lethal in utero for male fetuses, who only have one X chromosome. Females survive because of X-inactivation, resulting in cellular mosaicism where some cells express the normal allele. For this reason, it is considered a disease solely observed in females. In contrast, Asperger syndrome (B), selective mutism (C), and atypical autism (D) are all conditions that are diagnosed in both males and females, although there may be

differences in prevalence between the sexes. 199. How should you manage a patient with a long-standing history of alcoholism who, two days after stopping alcohol, develops seizures, altered sensorium, auditory hallucinations, and secondary delusions, having consumed about 24 units of alcohol daily for the past 10 years? 1. Diazepam 2. Thiamine 3. Naltrexone 4. Flupenthixol depot injection (A) 1,4 (B) 1,2,4 (C) 1,3,4 (D) 1,2 AAns (D) 1,2 The patient is presenting with delirium tremens (DTs), the most severe form of alcohol withdrawal, characterized by confusion, hallucinations, autonomic hyperactivity, and seizures. The immediate management goals are to control agitation and prevent further seizures, and to prevent Wernicke-Korsakoff syndrome. 1. Diazepam: A long-acting benzodiazepine is the cornerstone of treatment for severe alcohol withdrawal. It controls agitation, prevents seizures, and manages autonomic hyperactivity. 2. Thiamine: High-dose parenteral thiamine (Vitamin B1) is essential for all patients with complicated alcohol withdrawal to prevent or treat Wernicke's encephalopathy, a neurological emergency. It must be given before any glucose-containing fluids. 3. Naltrexone: This is an opioid antagonist used to reduce cravings and prevent relapse in the long-term management of alcohol use disorder, not for acute withdrawal. 4. Flupenthixol: An antipsychotic is generally avoided during acute withdrawal as it can lower the seizure threshold. Benzodiazepines are the preferred agent for managing psychosis in DTs. 200. Match the following: 1. Eonism a. Exposure of one's gen- itals to an unsuspect- ing stranger 2. Exhibitionism b. Sexual gratification by intercourse with dead bodies 3. Frotteurism c. Sexual pleasure by wearing clothes of the opposite sex 4. Necrophilia d. Sexual gratification by rubbing private parts against another per- son (A) 1-b, 2-a, 3-d, 4-c (B) 1-c, 2-a, 3-d, 4-b (C) 1-c, 2-d, 3-a, 4-b (D) 1-c, 2-b, 3-d, 4-a AAns (B) 1-c, 2-a, 3-d, 4-b This question matches specific paraphilic disorders with their definitions. 1. Eonism is an archaic term for transvestism or transvestic fetishism, which involves recurrent, intense sexual arousal from wearing clothes of the opposite sex (c). 2. Exhibitionism is characterized by arousal from the exposure of one's genitals to an unsuspecting stranger (a). 3. Frotteurism involves intense sexual arousal from touching or rubbing one's private parts against a non-consenting person (d), typically in a crowded setting. 4. Necrophilia is a paraphilia involving sexual interest in and arousal from dead bodies (b). Therefore, the correct matching is 1-c, 2-a, 3-d, 4-b. **********

Question 152. Which of the following is NOT included in the whole-body CT scan protocol for a trauma patient?

A. CT Head

B. CT Cervical spine

C. CT Limbs

D. CT Abdomen

Correct answer: C

CT Limbs A whole-body CT (WBCT) or "pan-scan" for a major trauma patient is a standardized

protocol designed to rapidly identify life-threatening injuries in the head, spine, and trunk. A typical WBCT protocol includes a non-contrast CT of the head (A), a CT of the cervical spine (B), and a contrast-enhanced CT of the chest, abdomen (D), and pelvis. This approach allows for the quick detection of intracranial bleeding, unstable spinal fractures, and major thoracic or abdominal organ injury and hemorrhage. CT of the limbs (C) is not a routine part of this initial screening protocol. Extremity injuries are generally assessed by physical examination and plain X-rays. A CT of a specific limb would only be performed subsequently if a complex fracture or vascular injury is suspected.

Question 153. Which of the following conditions does not exhibit egg-shell calcification?

A. Silicosis

B. Sarcoidosis

C. Post radiation therapy lymph nodes

D. Metastatic lymph nodes

Correct answer: D

Metastatic lymph nodes Eggshell calcification refers to a specific pattern seen on imaging where there is a fine, curvilinear rim of calcification at the periphery of a lymph node. This pattern is highly characteristic of two granulomatous diseases: silicosis (A) and sarcoidosis (B), where it is typically seen in hilar and mediastinal nodes. It can also be seen less commonly in lymph nodes after radiation therapy (C). However, this pattern is not typical for metastatic lymph nodes (D). While metastases from certain tumors (e.g., papillary thyroid carcinoma, mucinous adenocarcinoma of the colon) can calcify, the pattern is usually punctate, amorphous, or chunky, rather than a delicate peripheral eggshell rim.

Question 154. A 34-year-old woman is brought to the emergency department after a road traffic accident. Although her vital signs are stable and her GCS score is 3, her non-contrast CT head scan is normal. What is the most likely diagnosis?

A. Subdural hemorrhage

B. Extradural hemorrhage

C. Diffuse axonal injury

D. Cerebral contusion

Correct answer: C

Diffuse axonal injury The clinical scenario presents a significant discrepancy: a patient in a deep coma (GCS of 3, the lowest possible score) but with a normal initial head CT scan. This pattern is the hallmark of diffuse axonal injury (DAI). DAI is a severe form of traumatic brain injury caused by shearing forces from rapid acceleration, deceleration, or rotation of the head. This causes widespread, microscopic damage to axons in the brain's white matter. Because the injury is microscopic, it is often not visible on an initial non-contrast CT scan. In contrast, major

hemorrhages like subdural (A), extradural (B), or cerebral contusions (D) are macroscopic bleeds that are typically readily apparent on an initial CT. Therefore, severe clinical findings with a normal initial CT strongly suggest DAI.

Question 155. A breast lump is detected in a female patient. All but one of the following options can be used to rule out malignancy. Which option cannot be used for this purpose?

A. Radiological investigations

B. PET scan

C. Clinical examination

D. Histology and cytology

Correct answer: B

PET scan The standard approach for evaluating a breast lump to diagnose or exclude cancer is the "triple assessment." This consists of: 1. Clinical examination (C) by a trained professional. 2. Radiological investigations (A), which include mammography and/or breast ultrasound. 3. Pathological sampling (D), such as fine-needle aspiration for cytology or core needle biopsy for histology. When all three components are concordantly benign, cancer can be excluded with a very high degree of confidence. A PET (Positron Emission Tomography) scan (B), however, is not a primary tool for diagnosing a breast lump. PET scans measure metabolic activity and are primarily used in oncology for staging known cancers, looking for metastases, or assessing treatment response. They lack the resolution and specificity to be used as a frontline tool to rule out cancer in a newly discovered lump. page 394 Answer tube itself, although it is septated by neural crest derivatives. Which muscles together form the pelvic diaphragm? 1. Iliococcygeus 2. Pubococcygeus 3. Obturator internus 4. Deep transverse perinei (A) 1,2 (B) 1,2,3,4 (C) 1,2,4 (D) 1,4 5. (A) 1,2 The pelvic diaphragm is a broad, muscular sheet that forms the floor of the pelvic cavity, providing essential support for the abdominopelvic viscera. It is composed of the levator ani and coccygeus muscles. The levator ani muscle is the major component and is itself a composite of three separate muscles: puborectalis, pubococcygeus, and iliococcygeus. Therefore, both the iliococcygeus (1) and the pubococcygeus (2) are integral parts of the pelvic diaphragm. The obturator internus (3) is a muscle located on the lateral wall of the pelvis and functions primarily as a lateral rotator of the thigh; it is not part of the pelvic floor. The deep transverse perinei muscle (4) is a component of the urogenital diaphragm (perineal membrane), which is a separate structure situated inferior to the pelvic diaphragm. Hence, only the iliococcygeus and pubococcygeus muscles from the given list contribute to the formation of the pelvic diaphragm. How might a fracture of the jugular canal manifest itself? (A) Loss of taste sensation in anterior 2/3rd of tongue (B) Loss of taste sensation in posterior 1/3rd of tongue (C) Loss of general sensation in anterior 2/3rd of tongue (D) Loss of motor sensation in anterior 2/3rd of tongue 6. (B) Loss of taste sensation in posterior 1/3rd of tongue The jugular

foramen is an aperture in the base of the skull through which three cranial nerves— the glossopharyngeal (CN IX), vagus (CN X), and accessory (CN XI)—and the internal jugular vein pass. A fracture involving this foramen can lead to damage to these nerves, resulting in a constellation of symptoms known as jugular foramen syndrome. The glossopharyngeal nerve (CN IX) provides both general and special (taste) sensation to the posterior one-third of the tongue. Therefore, a lesion of CN IX would result in the loss of taste in this specific region. The sensation of taste from the anterior two- thirds of the tongue (A) is carried by the chorda tympani, a branch of the facial nerve (CN VII). General sensation from the anterior two-thirds of the tongue (C) is provided by the lingual nerve, a branch of the trigeminal nerve (CN V3). Motor innervation to the tongue is via the hypoglossal nerve (CN XII). Which cranial nerve arises from the highlighted region shown in the image? (A) Oculomotor nerve (B) Glossopharyngeal nerve (C) Abducens nerve (D) Facial nerve 7. (C) Abducens nerve The highlighted region in the image corresponds to the pontomedullary junction, specifically near the midline on the ventral surface of the brainstem. The abducens nerve (cranial nerve VI) arises from this region. Anatomically, the abducens nerve emerges from the brainstem at the junction between the pons and medulla, close to the midline. It then ascends through the cavernous sinus and enters the orbit via the superior orbital fissure to supply the lateral rectus muscle, which abducts the eye. In contrast: 1. The oculomotor nerve (III) arises from the midbrain. 2. The glossopharyngeal nerve (IX) emerges from the lateral aspect of the medulla. 3. The facial nerve (VII) arises at the pontomedullary junction but more laterally, along with the vestibulocochlear nerve. Since the marked structure is near the midline at the pontomedullary junction, the nerve arising from this location is the abducens nerve (CN VI). Which of the subsequent options are included in the limbic system? 1. Amygdala 2. Hippocampus 3. Thalamus (A) 1,2 (B) 1,3 (C) 2,3 (D) 1,2,3 8. (D) 1,2,3 The limbic system is a set of interconnected brain structures that play a major role in emotion, memory, learning, and motivation. The amygdala (1) is a core component, critically involved in processing emotions like fear and aggression and in forming emotional memories. The hippocampus (2) is also central to the limbic system, being essential for the consolidation of information from short- term to long-term memory. While the entire thalamus is not considered part of the limbic system, certain thalamic nuclei, particularly the anterior nucleus and the dorsomedial nucleus, act as crucial relay stations within limbic circuits. For example, the anterior nucleus is a key part of the Papez circuit, receiving input from the mammillary bodies and projecting to the cingulate gyrus. Because of these integral functional connections, these parts of the thalamus (3) are considered components of the broader limbic system. Therefore, all three structures listed are included. In Meckel's diverticulum, which ectopic tissue is most frequently encountered? (A) Gastric and pancreatic (B) Colonic and pancreatic (C) Gastric and colonic (D) Thyroid and lung 9. (A) Gastric and pancreatic

Question 156. How should you manage a patient who comes to the outpatient

department with upward eye deviation after taking risperidone for schizophrenia?

A. Lorazepam

B. Promethazine

C. Olanzapine

D. Stop antipsychotic

Correct answer: B

Promethazine The patient's symptom of sustained, involuntary upward deviation of the eyes is an oculogyric crisis, a form of acute dystonic reaction. This is a well-known extrapyramidal side effect of antipsychotic medications like risperidone. This is a medical emergency that requires immediate treatment. The first-line treatment is the parenteral administration of an anticholinergic agent (e.g., benztropine, biperiden) or a first-generation antihistamine with strong anticholinergic properties, such as diphenhydramine or promethazine. These drugs rapidly reverse the dystonic reaction. Lorazepam (A) may be used as an adjunctive agent for sedation and muscle relaxation but is not the primary treatment. Simply stopping the antipsychotic (D) or switching to another (C) will not resolve the acute crisis, which requires immediate pharmacological intervention.

Question 157. Which of the following diseases is solely observed in females?

A. Rett syndrome

B. Asperger syndrome

C. Selective mutism

D. Atypical autism

Correct answer: A

Rett syndrome Rett syndrome is a unique, X-linked dominant neurodevelopmental disorder that is observed almost exclusively in females. It is caused by mutations in the MECP2 gene. Because the gene is located on the X chromosome and the mutation is dominant, it is almost always lethal in utero for male fetuses, who only have one X chromosome. Females survive because of X-inactivation, resulting in cellular mosaicism where some cells express the normal allele. For this reason, it is considered a disease solely observed in females. In contrast, Asperger syndrome (B), selective mutism (C), and atypical autism (D) are all conditions that are diagnosed in both males and females, although there may be differences in prevalence between the sexes.

Question 158. How should you manage a patient with a long-standing history of alcoholism who, two days after stopping alcohol, develops seizures, altered sensorium, auditory hallucinations, and secondary delusions, having consumed about 24 units of alcohol daily for the past 10 years? 1. Diazepam 2. Thiamine 3. Naltrexone 4. Flupenthixol depot injection

A. 1,4

B. 1,2,4

C. 1,3,4

D. 1,2

Correct answer: D

1,2 The patient is presenting with delirium tremens (DTs), the most severe form of alcohol withdrawal, characterized by confusion, hallucinations, autonomic hyperactivity, and seizures. The immediate management goals are to control agitation and prevent further seizures, and to prevent Wernicke-Korsakoff syndrome. 1. Diazepam: A long-acting benzodiazepine is the cornerstone of treatment for severe alcohol withdrawal. It controls agitation, prevents seizures, and manages autonomic hyperactivity. 2. Thiamine: High-dose parenteral thiamine (Vitamin B1) is essential for all patients with complicated alcohol withdrawal to prevent or treat Wernicke's encephalopathy, a neurological emergency. It must be given before any glucose-containing fluids. 3. Naltrexone: This is an opioid antagonist used to reduce cravings and prevent relapse in the long-term management of alcohol use disorder, not for acute withdrawal. 4. Flupenthixol: An antipsychotic is generally avoided during acute withdrawal as it can lower the seizure threshold. Benzodiazepines are the preferred agent for managing psychosis in DTs.

Question 159. Match the following: 1. Eonism a. Exposure of one's gen- itals to an unsuspect- ing stranger 2. Exhibitionism b. Sexual gratification by intercourse with dead bodies 3. Frotteurism c. Sexual pleasure by wearing clothes of the opposite sex 4. Necrophilia d. Sexual gratification by rubbing private parts against another per- son

A. 1-b, 2-a, 3-d, 4-c

B. 1-c, 2-a, 3-d, 4-b

C. 1-c, 2-d, 3-a, 4-b

D. 1-c, 2-b, 3-d, 4-a

Correct answer: B

1-c, 2-a, 3-d, 4-b This question matches specific paraphilic disorders with their definitions. 1. Eonism is an archaic term for transvestism or transvestic fetishism, which involves recurrent, intense sexual arousal from wearing clothes of the opposite sex (c). 2. Exhibitionism is characterized by arousal from the exposure of one's genitals to an unsuspecting stranger (a). 3. Frotteurism involves intense sexual arousal from touching or rubbing one's private parts against a non-consenting person (d), typically in a crowded setting. 4. Necrophilia is a paraphilia involving sexual interest in and arousal from dead bodies (b). Therefore, the correct matching is 1-c, 2-a, 3-d, 4-b. **********