INI-CET November 2022 Question Paper

146 recall questions with answers and explanations.

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Question 1. Arrange the following structures in the correct order as they participate in the direct pathway of the basal ganglia : 1 Striatum 2 Globus pallidus 3 Substantia nigra 4 Thalamus 5 Cortex

A. 1,2,3,4,5

B. 5,4,2,3,1

C. 5,1,2,3,4

D. 1,3,4,2,5

Correct answer: C

5,1,2,3,4 The direct pathway of the basal ganglia is a crucial circuit that facilitates the initiation of voluntary movement. The sequence begins with excitatory glutamatergic signals from the cerebral cortex (5) to the striatum (1) (caudate and putamen). The striatum then sends inhibitory GABAergic projections directly to the internal segment of the globus pallidus (GPi) and the substantia nigra pars reticulata (SNr) (2 & 3). This inhibitory signal from the striatum suppresses the tonic inhibitory output of the GPi/SNr complex. The GPi/SNr normally inhibits the thalamus (4). By inhibiting the GPi/SNr, the striatum effectively disinhibits the thalamus, allowing it to send excitatory signals back to the motor cortex, thus promoting movement. Therefore, the correct sequence of information flow in the direct pathway is Cortex → Striatum → Globus Pallidus Internus/Substantia Nigra Pars Reticulata → Thalamus → Cortex. The provided option C reflects this pathway core sequence.

Question 2. Which ligament links the medial cuneiform bone to the base of the second metatarsal?

A. Spring

B. Deltoid

C. Chopart

D. Lisfranc

Correct answer: D

Lisfranc The Lisfranc ligament is a critical structure for maintaining the stability of the midfoot. It is a strong, short ligament that connects the medial cuneiform bone to the base of the second metatarsal. This ligament forms a key part of the Lisfranc joint complex, which comprises the

articulations between the tarsal bones (cuneiforms and cuboid) and the bases of the metatarsals. Injury to this ligament can lead to significant instability and dislocation of the tarsometatarsal joint, an injury known as a Lisfranc fracture-dislocation. The spring ligament (A) supports the head of the talus and the longitudinal arch of the foot. The deltoid ligament (B) is on the medial side of the ankle, connecting the tibia to the tarsal bones. The Chopart joint (C) refers to the transverse tarsal joint, not a specific ligament connecting the described bones.

Question 3. Which of the following muscles is involved in the actions of smiling and grimacing?

A. Lateral rectus

B. Superior oblique

C. Risorius

D. Levator palpebrae superioris

Correct answer: C

Risorius The risorius is a muscle of facial expression that arises from the fascia over the parotid gland and inserts into the skin at the angle of the mouth. Its primary action is to retract the angle of the mouth laterally, producing a grimace or an insincere smile. It is innervated by the buccal branch of the facial nerve (CN VII). The other options are incorrect as they are not muscles of facial expression. The lateral rectus (A) is an extraocular muscle responsible for abducting the eyeball, innervated by the abducens nerve (CN VI). The superior oblique (B) is another extraocular muscle that causes intorsion, depression, and abduction of the eyeball, innervated by the trochlear nerve (CN IV). The levator palpebrae superioris (D) elevates the upper eyelid and is primarily innervated by the oculomotor nerve (CN III).

Question 4. Which pharyngeal pouch is most likely responsible for the defective development in a child who lacks the thymus and the inferior parathyroid glands?

A. 1

B. 2

C. 3

D. 4

Correct answer: C

3 The pharyngeal pouches are endodermal outpouchings that give rise to several important structures in the head and neck. The third pharyngeal pouch has two components : a dorsal wing and a ventral wing. The dorsal wing develops into the inferior parathyroid glands, while the ventral wing develops into the thymus. Failure of the third pharyngeal pouch to develop properly leads to DiGeorge syndrome, a condition characterized by thymic aplasia (leading to T-cell deficiency and immunodeficiency) and absence of the inferior parathyroid glands (leading to hypocalcemia). The first pouch forms the middle ear cavity and Eustachian tube (A). The second pouch contributes to the palatine tonsil (B). The fourth pouch's dorsal part forms the

superior parathyroid glands (D). Therefore, the concurrent absence of the thymus and inferior parathyroid glands points directly to a developmental defect of the third pharyngeal pouch.

Question 5. What is the function of the superior oblique muscle?

A. Intorsion, abduction, depression

B. Intorsion, adduction, elevation

C. Extorsion, abduction, depression

D. Extorsion, adduction, elevation

Correct answer: A

Intorsion, abduction, depression The superior oblique is one of the six extraocular muscles responsible for eye movement. It is uniquely innervated by the trochlear nerve (CN IV). Its tendon passes through a fibrous pulley called the trochlea and inserts on the superolateral aspect of the posterior globe. This unique anatomical course dictates its complex actions. The primary action of the superior oblique muscle is intorsion, which is the inward rotation of the top of the eye towards the nose. Its secondary action is depression (moving the eye downward), which is most effective when the eye is adducted. Its tertiary action is abduction (moving the eye outward). Therefore, the combination of intorsion, abduction, and depression correctly describes the functions of the superior oblique muscle. The other options list incorrect combinations of movements, such as extorsion, adduction, or elevation, which are not primary functions of this muscle.

Question 6. What is the typical prostate volume in adult males with normal health?

A. 20cc

B. 50cc

C. 75cc

D. 100cc

Correct answer: A

20cc The prostate is a gland in the male reproductive system located just below the bladder. In a healthy young adult male, the prostate is roughly the size of a walnut. Its volume is typically measured in cubic centimeters (cc) or milliliters (mL), which are equivalent units. The normal prostate volume is approximately 20 cc (or 20 grams). With age, the prostate often undergoes benign prostatic hyperplasia (BPH), which causes an increase in its size. Volumes of 50 cc, 75 cc, or 100 cc are indicative of significant prostatic enlargement, commonly seen in older men with BPH, and can lead to lower urinary tract symptoms due to compression of the urethra. Therefore, for an adult male in normal health without pathology, 20 cc represents the typical prostate volume. This standard value is important for diagnosing and staging conditions like BPH and prostate cancer.

Question 7. Arrange the lung hilar structures in order from anterior to posterior. 1

Primary bronchus 2 Bronchial artery 3 Pulmonary vein 4 Pulmonary artery

A. 1,2,3,4

B. 2,3,4,1

C. 3,4,1,2

D. 4,3,2,1

Correct answer: C

3,4,1,2 The hilum of the lung is the region on the medial surface where structures enter and exit. The arrangement of these structures from anterior to posterior is a key anatomical relationship. The most anterior structure is typically the superior pulmonary vein (3). Posterior to the pulmonary vein is the pulmonary artery (4). The most posterior major structure is the primary bronchus (1). The bronchial arteries (2), which supply oxygenated blood to the lung tissue itself, are usually located on the posterior aspect of the bronchi. Therefore, the correct sequence from anterior to posterior is Pulmonary vein, Pulmonary artery, Primary bronchus, and Bronchial artery. This arrangement can be remembered with the mnemonic "V-A-B" (Vein, Artery, Bronchus) from front to back. The bronchial arteries are closely associated with the posterior surface of the bronchus, making them the most posterior elements.

Question 8. At high altitudes, which of the following physiological adaptations does not occur?

A. Pulmonary vasoconstriction

B. Polycythemia

C. Respiratory acidosis

D. Hypoxia

Correct answer: C

Respiratory acidosis Acclimatization to high altitudes involves several physiological changes to cope with the lower partial pressure of oxygen (hypobaric hypoxia). Hypoxia (D) is the primary stimulus for these adaptations. In response to hypoxia, the peripheral chemoreceptors (carotid bodies) are stimulated, leading to hyperventilation. This increased breathing rate blows off more carbon dioxide (), leading to a decrease in arterial . A decrease in causes respiratory alkalosis, not respiratory acidosis. Respiratory acidosis would imply retention. Hypoxia also causes pulmonary vasoconstriction (A) as a direct effect on the pulmonary arterioles, which can lead to pulmonary hypertension. For long-term adaptation, the kidneys produce more erythropoietin (EPO), which stimulates red blood cell production, resulting in polycythemia (B) to increase the oxygen-carrying capacity of the blood. Therefore, respiratory acidosis is the physiological change that does not occur.

Question 9. In which parts of the body is the countercurrent mechanism found? 1 Eye 2 Testes 3 Kidney 4 Gut 5 Lungs

A. 1 and 2 are correct

B. 1, 2, 3 are correct

C. 1, 2, 3, 4, 5 are correct

D. 2, 3, 4, 5 are correct

Correct answer: B

1, 2, 3 are correct A countercurrent mechanism involves two adjacent fluids flowing in opposite directions to maximize the exchange of heat, ions, or gases. The most well-known example is in the kidney (3), specifically the loop of Henle and vasa recta, which establish a medullary osmotic gradient crucial for concentrating urine. The testes (2) utilize a countercurrent heat exchange mechanism in the pampiniform plexus of veins, which cools arterial blood before it reaches the testes, maintaining a temperature optimal for spermatogenesis. The choroid plexus in the eye (1) is also thought to utilize a countercurrent mechanism to help regulate ion transport and fluid secretion. The gut and lungs do not employ a classical countercurrent exchange system for their primary functions. Therefore, the eye, testes, and kidney are the correct locations among the options provided where this mechanism is found.

Question 10. Match the following molecules with their corresponding carriers in plasma : 1. Thyroxine a. Hemopexin 2. Fatty acid b. Prealbumin 3. Hemoglobin c. Albumin 4. Heme d. Haptoglobin

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

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

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

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

Correct answer: A

1-b, 2-c, 3-d, 4-a Plasma proteins serve as carriers for various molecules. Thyroxine (1) is primarily transported by thyroxine-binding globulin (TBG), but also significantly by transthyretin, also known as prealbumin (b). Fatty acids (2), being hydrophobic, are transported bound to albumin (c), which is the most abundant plasma protein and a major carrier for many substances. Free hemoglobin (3) released into the plasma from red blood cell lysis is toxic. It is bound by haptoglobin (d) to form a complex that is cleared by the reticuloendothelial system, preventing renal damage. Free heme (4), which can also be released during hemolysis, is bound by hemopexin (a), another protective plasma protein. This matching correctly pairs each substance with its specific or primary plasma transport protein, making option A the correct choice.

Question 11. In a pressure-volume curve, what does a reading of zero pressure imply?

A. Residual volume

B. Tidal volume

C. Functional residual capacity

D. Inspiratory reserve volume

Correct answer: C

Functional residual capacity The pressure-volume curve of the respiratory system plots lung volume against pressure. The pressure referred to is the transthoracic or trans-respiratory system pressure, which is the pressure difference between the airway opening (mouth) and the body surface. A reading of zero pressure signifies the point where the respiratory system is at rest, with no muscular effort being exerted. At this equilibrium point, the inward elastic recoil of the lungs is perfectly balanced by the outward elastic recoil of the chest wall. The volume of air remaining in the lungs at this specific point is the Functional Residual Capacity (FRC). It is the sum of the expiratory reserve volume (ERV) and the residual volume (RV). Residual volume (A) is the air left after maximal forced expiration. Tidal volume (B) is the air exchanged during normal breathing. Inspiratory reserve volume (D) is the extra air that can be inhaled after a normal inspiration.

Question 12. Among the given options, which organ exhibits the smallest disparity in oxygen levels between the arteries and veins?

A. Brain

B. Kidney

C. Skin

D. Liver

Correct answer: B

Kidney The disparity in oxygen levels between arteries and veins is known as the arteriovenous oxygen difference (diff). It reflects the amount of oxygen extracted and consumed by the organ's tissues. The kidney receives a very high blood flow, approximately 20-25% of the cardiac output, which is far in excess of its metabolic needs. The primary function of this high flow is filtration, not oxygen delivery. Consequently, the kidneys extract a relatively small fraction of the oxygen delivered to them, resulting in the smallest arteriovenous oxygen difference among all major organs. The brain (A) and liver (D) are metabolically active and have significant oxygen extraction. The skin (C) has a variable difference, as its blood flow is highly regulated for thermoregulation, but it is generally higher than that of the kidney.

Question 13. What is the corrected reticulocyte count when the hemoglobin (Hb) level is 5 g/dL and the absolute reticulocyte count percentage is 9%?

A. 5

B. 4.5

C. 3

D. 1.8

Correct answer: C

3 The corrected reticulocyte count (CRC) is calculated to account for the degree of anemia, as a

lower red blood cell count can falsely elevate the reticulocyte percentage. The formula for CRC is : CRC (%) = Reticulocyte count (%) × (Patient's Hemoglobin / Normal Hemoglobin) Assuming a normal hemoglobin level of 15 g/dL for calculation purposes. Given : Reticulocyte count = 9% Patient's Hb = 5 g/dL Normal Hb = 15 g/dL CRC = 9 × (5 / 15) = 9 × (1/3) = 3% A further correction, the Reticulocyte Production Index (RPI), is often calculated to account for the premature release of reticulocytes (shift cells), but based on the options, only the CRC is required. The corrected count of 3% indicates the bone marrow's response to the anemia. A value greater than 2-3% suggests an adequate marrow response (e.g., hemolysis or hemorrhage), while a value less than 2% suggests an inadequate response (hypoproliferation).

Question 14. Where is the signaling sequence located in a type 2 membrane protein that has its N-terminal facing the cytoplasm?

A. Inside the membrane

B. At the C-terminal

C. At the N-terminal

D. Both inside the membrane and at the C-terminal

Correct answer: A

Inside the membrane Type II transmembrane proteins are single-pass proteins oriented with their N-terminus in the cytoplasm and their C-terminus in the extracellular space or organelle lumen. Unlike proteins with a cleavable N-terminal signal peptide (Type I proteins), Type II proteins utilize an internal, non-cleavable signal sequence. This sequence serves two functions : it acts as a signal peptide to target the ribosome-nascent chain complex to the endoplasmic reticulum, and it also functions as a transmembrane anchor. This internal signal-anchor sequence is hydrophobic and becomes embedded inside the membrane, establishing the protein's orientation. The flanking positive charges on the N-terminal side of the sequence ensure that the N-terminus remains in the cytoplasm according to the "positive-inside rule." Therefore, the signal sequence is not at the N-terminal (C) or C-terminal (B), but is an internal segment that becomes the transmembrane domain.

Question 15. For glucose uptake, which tissues rely on insulin?

A. Skeletal muscle and adipose tissue

B. Liver

C. Brain

D. Kidneys

Correct answer: A

Skeletal muscle and adipose tissue The uptake of glucose into cells is mediated by glucose transporter (GLUT) proteins. The expression and activity of these transporters vary among tissues. Skeletal muscle and adipose tissue express the GLUT4 transporter. The translocation of GLUT4 from intracellular vesicles to the plasma membrane is an insulin-dependent process. In

the presence of insulin, GLUT4 is inserted into the cell membrane, facilitating the entry of glucose into these cells. This is a primary mechanism by which insulin lowers blood glucose levels. In contrast, the brain (C) primarily uses GLUT1 and GLUT3, the liver (B) uses GLUT2, and the kidneys (D) also use insulin-independent transporters like GLUT1 and GLUT2. These transporters are constitutively present on the cell surface and do not require insulin for glucose uptake, ensuring these vital organs have a constant glucose supply regardless of insulin levels.

Question 16. What is the typical amount of water loss through insensible means?

A. 100 mL/hour

B. 150 mL/hour

C. 50 mL/hour

D. 200 ml./hour

Correct answer: C

50 mL/hour Insensible water loss refers to the water lost from the body through routes that are not easily perceived or measured, primarily through evaporation from the skin (not sweating) and from the respiratory tract during breathing. In a healthy, afebrile adult at rest in a temperate environment, the total insensible water loss is approximately 700-1000 mL per day. To convert this to an hourly rate : 800 mL / 24 hours ≈ 33 mL/hour. 1000 mL / 24 hours ≈ 42 mL/hour. The value of 50 mL/hour (which equates to 1200 mL/day) is a commonly used clinical estimate, especially when considering factors that might increase this loss, such as fever, hyperventilation, or low ambient humidity. The other options represent significantly higher rates of water loss : 100 mL/hr (2400 mL/day), 150 mL/hr (3600 mL/day), and 200 mL/hr (4800 mL/day), which are not typical for basal insensible loss.

Question 17. What is the correct sequence of events that occur during vomiting in a woman who feels nauseated after eating spicy food? 1 LES is open and UES is closed 2 Strong contractions in the stomach 3 Inspiration against a closed glottis 4 Relaxation of the pyloric sphincter 5 LES opens and UES opens 6 Reverse peristalsis in the small intestine (LES : Lower esophageal sphincter; UES : Upper esophageal sphincter)

A. 6,4,2,5,1,3

B. 6,4,2,3,1,5

C. 4,6,2,1,3,5

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

Correct answer: B

6,4,2,3,1,5 Vomiting is a coordinated reflex controlled by the vomiting center in the medulla. First, reverse peristalsis in the small intestine (6) occurs, pushing intestinal contents back toward the stomach. Next, the pyloric sphincter relaxes (4), allowing duodenal contents to enter the stomach. Then, strong contractions of the stomach (2) take place along with contraction of

abdominal muscles to increase intra-abdominal pressure. Following this, there is inspiration against a closed glottis (3). This action fixes the diaphragm and increases intra-abdominal pressure, helping propel gastric contents upward. At this stage, the lower esophageal sphincter (LES) opens while the upper esophageal sphincter (UES) remains closed (1), allowing contents to move into the esophagus but preventing immediate expulsion. Finally, both LES and UES open (5), permitting expulsion of gastric contents through the mouth. Thus, the correct physiological sequence is 6 → 4 → 2 → 3 → 1 → 5, corresponding to option (B).

Question 18. Iron in tissues is stained by which of the following?

A. Masson's trichrome

B. Prussian blue

C. PAS

D. File Faraco

Correct answer: B

Prussian blue Prussian blue, also known as Perls' stain, is the classic and most widely used histochemical stain for detecting the presence of ferric iron () deposits in tissues. This reaction is based on treating the tissue section with an acidic solution of potassium ferrocyanide. The ferrocyanide reacts with any ferric iron present to form an insoluble, bright blue pigment called ferric ferrocyanide, which is visually identifiable under a microscope. This stain is crucial for diagnosing conditions involving iron overload, such as hemochromatosis and hemosiderosis. Masson's trichrome (A) is used to stain collagen blue/green, muscle and keratin red, and cytoplasm pink. Periodic acid-Schiff (PAS) (C) is used to detect glycogen and other carbohydrates, staining them magenta. File Faraco is not a standard histological stain. BIOCHEMISTRY

Question 19. In a patient with maple syrup urine disease (MSUD), the diet should restrict all of the following amino acids except which one?

A. Methionine

B. Valine

C. Leucine

D. Isoleucine

Correct answer: A

Methionine Maple Syrup Urine Disease (MSUD) is an autosomal recessive metabolic disorder caused by a deficiency in the branched-chain alpha-ketoacid dehydrogenase (BCKAD) complex. This enzyme is essential for the catabolism of the branched-chain amino acids (BCAAs) : leucine (C), isoleucine (D), and valine (B). When this enzyme is deficient, these amino acids and their toxic byproducts (alpha-ketoacids) accumulate in the blood and urine, leading to neurotoxicity and a characteristic maple syrup or burnt sugar odor in the urine. The mainstay of management for MSUD is a lifelong dietary restriction of these three branched-chain amino acids. Methionine

(A) is a sulfur-containing amino acid, not a BCAA, and its metabolic pathway is different. Therefore, methionine is not restricted in the diet of a patient with MSUD.

Question 20. What is the product of deamination of methylated cytosine?

A. Uracil

B. Cytosine

C. Guanine

D. Thymine

Correct answer: D

Thymine Deamination is the removal of an amine group from a molecule. In the context of DNA bases, spontaneous deamination is a common form of DNA damage. When an unmethylated cytosine undergoes deamination, it is converted into uracil (A). This is easily recognized by DNA repair enzymes (uracil DNA glycosylase) as an abnormal base in DNA and is efficiently removed. However, in many organisms, cytosine can be methylated at the 5th carbon position to form 5-methylcytosine, an important epigenetic mark. When 5-methylcytosine undergoes spontaneous deamination, it is converted into thymine. Since thymine is a normal DNA base, this C-to-T transition is not as easily recognized by repair systems, making methylated cytosine residues "hotspots" for mutation. This process is a significant source of single nucleotide polymorphisms in the genome.

Question 21. What is the cause of elevated H+ ions in the intermembrane space of mitochondria?

A. Decreased oxidative phosphorylation

B. Increased ATP production

C. Reduced chemiosmosis

D. Water retention in inner mitochondrial space

Correct answer: B

Increased ATP production During cellular respiration, the electron transport chain (ETC) located on the inner mitochondrial membrane actively pumps hydrogen ions (H^+) from the mitochondrial matrix into the intermembrane space. This process occurs as electrons pass through complexes I, III, and IV. The energy released from electron transfer is used to pump protons against their concentration gradient, resulting in an accumulation of H^+ ions in the intermembrane space. This creates a proton gradient and an electrochemical potential difference known as the proton motive force. The elevated concentration of H^+ ions in the intermembrane space is essential for ATP synthesis. When protons flow back into the matrix through ATP synthase, the energy released drives the conversion of ADP and inorganic phosphate into ATP. Thus, increased ATP production is associated with active electron transport and proton pumping, which leads to elevated H^+ concentration in the intermembrane space. Therefore, option (B) is correct.

Question 22. In which pathway does Cyclooxygenase have a role?

A. Kreb's cycle

B. Prostaglandin

C. Leukotriene

D. Vitamin K

Correct answer: B

Prostaglandin Cyclooxygenase (COX), also known as prostaglandin-endoperoxide synthase (PTGS), is the key enzyme in the synthesis of prostanoids, which include prostaglandins, prostacyclin, and thromboxanes. The pathway begins with the release of arachidonic acid from membrane phospholipids by phospholipase A2. COX then catalyzes the conversion of arachidonic acid into prostaglandin H2 (PGH2). PGH2 serves as the precursor for the various specific prostaglandins and thromboxanes, which are potent lipid mediators involved in inflammation, pain, fever, blood clotting, and gastric protection. The Krebs cycle (A) is central to cellular respiration. The leukotriene pathway (C) also uses arachidonic acid as a substrate but is initiated by the enzyme lipoxygenase. The Vitamin K cycle (D) is involved in the post-translational modification of clotting factors. PATHOLOGY

Question 23. How does the mutation of the cystic fibrosis gene occur?

A. Tryptophan at 708 position, chloride channel

B. Phenylalanine at 708 position, calcium channel

C. Phenylalanine at 508 position, chloride channel

D. Tryptophan at 508 position, calcium channel

Correct answer: C

Phenylalanine at 508 position, chloride channel Cystic fibrosis (CF) is an autosomal recessive genetic disorder caused by mutations in the gene that encodes the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) protein. The CFTR protein functions as a chloride channel on the surface of epithelial cells in the lungs, pancreas, sweat glands, and other organs. The most common mutation, accounting for approximately 70% of CF cases worldwide, is a deletion of three nucleotides that results in the loss of a phenylalanine amino acid at position 508 of the CFTR protein. This mutation is denoted as Δ F508. The Δ F508 mutation causes the CFTR protein to misfold, preventing its proper processing and trafficking to the cell membrane. This leads to a severe reduction in chloride ion transport, resulting in thick, sticky mucus and the characteristic multi-organ pathology of cystic fibrosis.

Question 24. Antigen binding to MHC class I activates which of the following cells?

A. B cells

B. NK cells

C. Cytotoxic T cells

D. Helper cells

Correct answer: C

Cytotoxic T cells Major Histocompatibility Complex (MHC) class I molecules are present on the surface of almost all nucleated cells. Their primary function is to present endogenous antigens—peptides derived from proteins synthesized within the cell, such as viral proteins or mutated tumor proteins—to the immune system. The T-cell receptor (TCR) of Cytotoxic T cells (also known as CD8+ T cells) specifically recognizes these peptide antigens when presented by MHC class I molecules. This recognition, along with co-stimulation, activates the cytotoxic T cell to kill the antigen-presenting cell, thereby eliminating infected or malignant cells. Helper T cells (CD4+ T cells) (D) recognize antigens presented by MHC class II molecules on professional antigen-presenting cells. B cells (A) recognize intact antigens via their B-cell receptors. NK cells (B) recognize cells lacking MHC class I expression.

Question 25. Which statement regarding anti-CMV IgG antibodies is accurate?

A. Denotes latent CMV infection

B. Denotes chronic CMV infection with immunity to other serotypes

C. Indicates acute CMV infection

D. IgG avidity assay helps in differentiating past and primary infection

Correct answer: D

IgG avidity assay helps in differentiating past and primary infection The presence of anti-CMV (Cytomegalovirus) IgG antibodies indicates that a person has been infected with CMV at some point in their life, but it does not, by itself, distinguish between a recent (primary) infection and a past or latent infection (A, C). After a primary infection, IgG antibodies are produced and typically persist for life. To determine the timing of the infection, an IgG avidity assay is used. This test measures the binding strength between IgG antibodies and the CMV antigen. Low-avidity IgG antibodies are characteristic of a recent primary infection (typically within the last 3-4 months), as the immune response is still maturing. High-avidity IgG antibodies indicate a past infection, as antibody binding strength increases over time. This differentiation is critically important, especially in managing pregnant women and transplant recipients. Statement (B) is incorrect as immunity is serotype-specific.

Question 26. In a healthy adult, what is the proportion between T cells and B cells?

A. 1 :1

B. 3 :1

C. 1 :2

D. 1 :3

Correct answer: B

3 :1 T cells (T lymphocytes) and B cells (B lymphocytes) are the two major types of lymphocytes that constitute the adaptive immune system. They are found in blood, lymph, and lymphoid organs. In the peripheral blood of a healthy adult, T cells are significantly more numerous than

B cells. T cells typically constitute about 70-80% of the circulating lymphocyte population, while B cells make up about 10-20%. This results in a T cell to B cell ratio that is approximately 3 :1 to 4 :1. This reflects the central role of T cells in orchestrating and executing adaptive immune responses, including cell-mediated immunity (by cytotoxic T cells) and the regulation of antibody production (by helper T cells). The other ratios are incorrect representations of the normal lymphocyte distribution in peripheral blood.

Question 27. Except for which of the following conditions, can thrombolysis be considered?

A. MRI showing density in less than 1/3rd of the area supplied by MCA

B. Blood pressure of more than 185/110 mmHg

C. Ischemic stroke within 2 hours

D. Onset of symptoms <4 hours

Correct answer: B

Blood pressure of more than 185/110 mmHg Thrombolysis with tissue plasminogen activator (tPA) is a critical treatment for acute ischemic stroke, but it has strict inclusion and exclusion criteria to minimize the risk of hemorrhagic transformation. Statements (C) and (D) represent the therapeutic time window; treatment is most effective when given early, typically within 3 to 4.5 hours of symptom onset. Statement (A) is an inclusion criterion; if a large area of the brain supplied by the middle cerebral artery (MCA) is already infarcted (hypodense on CT or evident on MRI), the risk of hemorrhage with thrombolysis is high. Therefore, evidence of infarction in less than one-third of the MCA territory is favorable. Statement (B), a persistently elevated blood pressure of more than 185/110 mmHg, is a major contraindication to thrombolysis. High blood pressure significantly increases the risk of intracranial hemorrhage after tPA administration. The blood pressure must be carefully lowered and maintained below this threshold before thrombolysis can be initiated.

Question 28. Which abdominal site is most commonly involved in tuberculosis?

A. Rectum

B. Colon

C. Small intestine

D. Ileocecal junction

Correct answer: D

Ileocecal junction Abdominal tuberculosis can affect any part of the gastrointestinal tract, peritoneum, lymph nodes, or solid organs. However, the most common site of involvement within the gastrointestinal tract is the ileocecal junction. This predilection is attributed to several factors in this region : a relative abundance of lymphoid tissue (Peyer's patches), which are a primary site for mycobacterial invasion; physiological stasis, which allows for prolonged contact time between the bacilli and the mucosa; and a higher rate of fluid and electrolyte

absorption. The terminal ileum and cecum are affected in approximately 80-90% of cases of intestinal tuberculosis. Clinically, this can mimic other conditions like Crohn's disease or appendicitis. The colon (B), small intestine (C), and rectum (A) can also be affected, but less frequently than the ileocecal region.

Question 29. Which statement accurately describes proto- oncogenes? 1 KIT has decreased expression via the tyrosine kinase signaling pathway in GIST. 2 KRAS mutation is more commonly associated with small cell lung cancer. 3 ERBB2 is over-expressed in association with breast carcinomas. 4 PDGFR- β has suppressed expression in colorectal cancer.

A. 2 only

B. 3 only

C. 1 and 4

D. 2 and 3

Correct answer: B

3 only Proto-oncogenes are normal genes that, when mutated or overexpressed, can become oncogenes and contribute to cancer development. 1 Statement 1 is incorrect. Activating mutations in the KIT proto-oncogene lead to increased, not decreased, expression and constitutive activation of its tyrosine kinase pathway, which is a key driver in gastrointestinal stromal tumors (GIST). 2 Statement 2 is incorrect. KRAS mutations are very common in lung adenocarcinoma but are rare in small cell lung cancer. 3 Statement 3 is correct. ERBB2 (also known as HER2/neu) is a proto-oncogene that encodes a receptor tyrosine kinase. Its amplification and subsequent over-expression are found in about 20-25% of breast carcinomas and are associated with a more aggressive phenotype. 4 Statement 4 is incorrect. Platelet-derived growth factor receptors (PDGFR) are often over-expressed, not suppressed, in various cancers, driving proliferation and angiogenesis. Therefore, only statement 3 is accurate.

Question 30. Which of the following statements accurately describe familial adenomatous polyposis? 1 It is autosomal recessive. 2 If not treated, 100% of the cases progress to adenocarcinoma of the colon. 3 Polyps do not arise after puberty. 4 It is associated with congenital hypertrophy of the retinal pigment epithelium.

A. 2 and 4

B. 1 and 4

C. 2 and 3

D. 3 and 4

Correct answer: A

2 and 4 Familial Adenomatous Polyposis (FAP) is a genetic disorder caused by germline mutations in the APC (Adenomatous Polyposis Coli) tumor suppressor gene. 1 Statement 1 is incorrect. FAP is an autosomal dominant disorder. 2 Statement 2 is correct. FAP is characterized

by the development of hundreds to thousands of adenomatous polyps in the colon. If left untreated, the risk of progression to colorectal adenocarcinoma is virtually 100%, usually by the age of 40. Prophylactic colectomy is the standard treatment. 3 Statement 3 is incorrect. Polyps typically begin to appear during adolescence, usually after puberty, around the mean age of 16 years. 4 Statement 4 is correct. Congenital Hypertrophy of the Retinal Pigment Epithelium (CHRPE) is a well-recognized extracolonic manifestation of FAP and can be a useful clinical marker for identifying at-risk family members. Therefore, statements 2 and 4 are the accurate descriptions of FAP.

Question 31. Match the following cell types with their associated malignancy. 1. Popcorn cell a. Acute promyelocytic leukemia 2. Faggot cell b. Lymphocyte-predominant Hodgkin's lym- phoma 3. Cerebriform nuclei c. Burkitt lymphoma 4. Starry sky d. Sezary syndrome

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

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

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

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

Correct answer: A

1-b, 2-a, 3-d, 4-c This question tests the recognition of classic cytological and histological features of various hematological malignancies. 1 Popcorn cells (or L&H cells - lymphocytic and histiocytic cells) are characteristic variants of Reed-Sternberg cells seen in Nodular Lymphocyte-Predominant Hodgkin's Lymphoma (b). 2 Faggot cells are pathognomonic for Acute Promyelocytic Leukemia (APL) (a). These are malignant promyelocytes containing bundles of Auer rods, resembling a bundle of sticks or "faggots." 3 Cerebriform nuclei, which are convoluted and folded like a brain, are the hallmark of Sézary cells, found in the blood in Sézary syndrome and in the skin in mycosis fungoides (d). 4 The Starry sky pattern is a classic histological appearance of Burkitt lymphoma (c). It is created by scattered benign tangible body macrophages (the "stars") phagocytosing apoptotic tumor cells within a background of uniform, medium-sized, rapidly proliferating lymphoid cells (the "sky").

Question 32. Which of the following cytokines does not play a direct role in causing the Jarisch-Herxheimer reaction?

A. TNF- α

B. IL-6

C. IL-8

D. INF- γ

Correct answer: C

IL-8 The Jarisch–Herxheimer reaction is an acute inflammatory response that occurs after initiation of antibiotic therapy for spirochetal infections such as syphilis. It is caused by the

rapid destruction of spirochetes, leading to the release of lipoproteins and other inflammatory components into the circulation. These microbial products stimulate macrophages and other immune cells to release pro-inflammatory cytokines. The key cytokines directly involved in mediating the reaction are TNF- α , IL-6, and IFN- γ . TNF- α plays a central role in producing fever, hypotension, and systemic inflammatory symptoms. IL-6 contributes to fever and acute phase responses, while IFN- γ enhances macrophage activation and amplifies the inflammatory cascade. IL-8, on the other hand, is primarily a chemokine responsible for neutrophil chemotaxis. Although it participates in general inflammatory processes, it is not considered a principal mediator directly responsible for the Jarisch–Herxheimer reaction. Therefore, IL-8 is the cytokine that does not play a direct role in causing this reaction. MEDINK in an HIV-positive patient who has been on combination antiretroviral therapy (cART) for 5 months? (A) Nelfinavir (B) Emtricitabine (C) Abacavir (D) Zidovudine AAns (B) Emtricitabine Hyperpigmentation of the skin, particularly on the palms and soles, is a well-documented and characteristic adverse effect of certain antiretroviral drugs. Among the options provided, Emtricitabine (FTC) is most famously associated with this side effect. Emtricitabine is a nucleoside reverse transcriptase inhibitor (NRTI) and is a component of many common first-line cART regimens (e.g., Truvada, Atripla, Descovy). The hyperpigmentation is generally benign and does not necessitate discontinuation of the drug. It is thought to be more common in patients with darker skin. Zidovudine (D) is more known for causing nail pigmentation and bone marrow suppression. Nelfinavir (A) and Abacavir (C) are not typically associated with this specific form of hyperpigmentation.

Question 33. Which of the following is associated with neurogenic shock?

A. Hypertension + tachycardia

B. Hypotension + tachycardia

C. Hypotension + bradycardia

D. Hypertension + bradycardia

Correct answer: C

Hypotension + bradycardia Neurogenic shock is a form of distributive shock resulting from a severe injury to the central nervous system, typically a spinal cord injury above the T6 level. This injury disrupts the descending sympathetic pathways, leading to a loss of sympathetic tone to the blood vessels and the heart. The loss of vascular tone causes massive vasodilation, leading to a pooling of blood in the peripheral circulation and a sharp drop in systemic vascular resistance, resulting in profound hypotension. Unlike other forms of shock where hypotension triggers a compensatory tachycardia, neurogenic shock is characterized by the loss of sympathetic input to the heart. This leaves unopposed vagal (parasympathetic) stimulation, which causes bradycardia. Therefore, the classic hemodynamic profile of neurogenic shock is the unique combination of hypotension and bradycardia. Tachycardia is notably absent.

Question 34. What is the primary cause of affinity maturation of antibodies?

A. Somatic hypermutation

B. Differential mRNA processing

C. CD40

D. Gene rearrangements

Correct answer: A

Somatic hypermutation Affinity maturation is the process by which B cells produce antibodies with progressively higher affinity for their specific antigen during the course of an immune response. This critical process occurs within the germinal centers of secondary lymphoid organs. The primary molecular mechanism underlying affinity maturation is somatic hypermutation (SHM). SHM involves the introduction of random point mutations into the variable region genes of the immunoglobulin (antibody) chains, primarily mediated by the enzyme activation-induced deaminase (AID). This creates a diverse pool of B cell clones with slightly different B cell receptors (antibodies). B cells that express antibodies with a higher affinity for the antigen are then preferentially selected to survive and proliferate, leading to an overall increase in the affinity of the antibodies produced. Gene rearrangements (D) create the initial antibody diversity (V(D)J recombination), but not affinity maturation.

Question 35. What non-pharmacological management strategies should be recommended for a diabetic patient whose fasting blood glucose level is 160 mg/dL?

A. Consume at least 80 mg of dietary fibres daily

B. Limit <5 g sodium intake per day

C. <30% of the calories should come from fat

D. Keep dietary cholesterol <100 mg

Correct answer: C

<30% of the calories should come from fat Non-pharmacological management, or Medical Nutrition Therapy (MNT), is a cornerstone of diabetes care. For a patient with a fasting glucose of 160 mg/dL, lifestyle modifications are crucial. According to guidelines from the American Diabetes Association (ADA), a key dietary recommendation is to manage macronutrient intake. It is advised that total fat intake should constitute less than 30% of total daily calories, with an emphasis on reducing saturated and trans fats to improve cardiovascular health, a major concern in diabetes. Sodium intake should be limited to <2.3 g/day, not <5 g/day (B). While high fiber intake is beneficial (20-35 g/day is recommended), 80 mg (A) is an extremely small and incorrect value. Limiting dietary cholesterol is also advised, but the primary focus for most patients is on the type and amount of dietary fat, not a strict cholesterol number like <100 mg (D). Therefore, the most accurate and standard advice among the options is managing total fat intake.

Question 36. Which of the following drugs is not a primary treatment option for a

patient with rheumatoid arthritis?

A. Sulfasalazine

B. Hydroxychloroquine

C. Methotrexate

D. Azathioprine

Correct answer: D

Azathioprine The management of rheumatoid arthritis (RA) focuses on the use of Disease-Modifying Antirheumatic Drugs (DMARDs) to control inflammation and prevent joint damage. The cornerstone and first-line anchor drug for most patients with RA is Methotrexate (C). For mild disease or in combination with methotrexate, other conventional synthetic DMARDs like Hydroxychloroquine (B) and Sulfasalazine (A) are also considered primary choices. These three drugs form the basis of most initial treatment strategies, including "triple therapy." Azathioprine (D) is also a DMARD with immunosuppressive properties. However, it is generally considered a second-line or third-line agent for RA. It is used less frequently today due to a less favorable risk-benefit profile compared to methotrexate and other modern DMARDs, and it is typically reserved for patients who have failed or are intolerant to first-line therapies.

Question 37. In relation to drug absorption, what does the term "extent" signify?

A. Tmax

B. Area under the curve Click Here to Buy book on Amazon page 445 INICET Examination Paper

C. Small cell cancer of the lung

D. Large cell carcinoma

Correct answer: A

Squamous cell carcinoma The clinical presentation of hemoptysis and a central or hilar mass in a smoker is highly suggestive of either squamous cell carcinoma or small cell carcinoma. The definitive diagnosis comes from the immunohistochemistry result. p40 is a highly specific and sensitive marker for squamous differentiation. It is an isoform of p63, a transcription factor crucial for the development of squamous epithelium. Positive staining for p40 is considered a hallmark of Squamous Cell Carcinoma (SCC) of the lung. Adenocarcinoma of the lung (B) typically presents as a peripheral mass and would stain positive for markers like TTF-1 and Napsin-A. Small cell cancer (C) is a neuroendocrine tumor and would stain for markers like chromogranin, synaptophysin, and CD56. Large cell carcinoma (D) is a diagnosis of exclusion, lacking features of other types. The strong p40 positivity confirms the diagnosis of SCC.

Question 38. Which recently FDA-approved immune checkpoint inhibitor is used for treating endometrial carcinoma?

A. Nivolumab

B. Pembrolizumab

C. Trastuzumab

D. Ipilimumab

Correct answer: B

Pembrolizumab Immune checkpoint inhibitors have revolutionized the treatment of many cancers. Pembrolizumab (brand name Keytruda) is an antibody that targets the programmed cell death protein 1 (PD-1) receptor. It has received FDA approval for the treatment of advanced endometrial carcinoma, particularly for patients whose cancer is mismatch repair deficient (dMMR) or microsatellite instability-high (MSI-H) and has progressed following prior systemic therapy. It works by blocking the PD-1/PD-L1 pathway, which cancer cells often exploit to evade the immune system, thereby restoring the ability of T-cells to attack the tumor. Nivolumab (A) is another anti-PD-1 antibody used for other cancers. Ipilimumab (D) is an anti-CTLA-4 antibody. Trastuzumab (C) is a monoclonal antibody that targets the HER2 receptor and is not an immune checkpoint inhibitor.

Question 39. Please select the appropriate pairing for the drug and its corresponding adverse effect.

A. Hydralazine - Heart failure

B. Atenolol - Hemolytic anemia

C. Aliskiren - Hypokalemia

D. Verapamil - Constipation

Correct answer: D

Verapamil - Constipation This question tests knowledge of common and specific adverse drug reactions. (A) Hydralazine, a vasodilator, can cause reflex tachycardia and fluid retention, which can exacerbate, not cause, heart failure. Its classic side effect is a drug-induced lupus-like syndrome. (B) Atenolol, a beta-blocker, is not typically associated with hemolytic anemia. Methyldopa is the classic antihypertensive causing this. (C) Aliskiren, a direct renin inhibitor, can cause hyperkalemia, not hypokalemia, because it blocks the renin-angiotensin-aldosterone system. (D) Verapamil is a non-dihydropyridine calcium channel blocker. By blocking calcium channels in the smooth muscle of the gastrointestinal tract, it reduces gut motility, making constipation a very common and well-known side effect. This pairing is correct and clinically significant.

Question 40. What is the advised length of time a woman should stop taking tamoxifen before attempting pregnancy after undergoing a mastectomy for breast cancer?

A. 1 month

B. 3 months

C. No need to stop

D. Can be stopped and conceived soon after stopping

Correct answer: B

3 months Tamoxifen is a selective estrogen receptor modulator (SERM) used as adjuvant therapy for hormone receptor-positive breast cancer. It is a known teratogen and is contraindicated during pregnancy due to the risk of significant fetal abnormalities. Additionally, it has a long elimination half-life of about 5-7 days, and its active metabolites can persist even longer. To ensure that the drug and its metabolites are completely cleared from the system before conception is attempted, a "washout" period is required. The standard recommendation is to discontinue tamoxifen for at least 2 to 3 months before attempting to conceive. This allows for adequate clearance of the drug, minimizing the teratogenic risk to the fetus. Therefore, stopping and conceiving immediately is unsafe, and a 1-month period is generally considered insufficient.

Question 41. Which sign or symptom likely led clinicians to suspect muscarinic poisoning in a male patient brought to the emergency department after ingesting an unknown toxin?

A. Mydriasis

B. Diuresis

C. Muscle fasciculations

D. Bradycardia

Correct answer: D

Bradycardia Muscarinic poisoning, or cholinergic crisis, results from the overstimulation of muscarinic acetylcholine receptors. This can be caused by organophosphate insecticides or certain mushrooms. The symptoms can be remembered by the mnemonics DUMBELS (Diarrhea, Urination, Miosis, Bradycardia/Bronchospasm, Emesis, Lacrimation, Salivation) or SLUDGE (Salivation, Lacrimation, Urination, Defecation, GI distress, Emesis). Bradycardia (a slow heart rate) is a key cardiovascular sign due to the stimulation of M2 receptors in the heart. Mydriasis (A) or pupil dilation is an anticholinergic sign. Diuresis (B) is part of the syndrome, but bradycardia is a more specific cardiovascular finding. Muscle fasciculations (C) are a sign of nicotinic receptor stimulation, which is seen in organophosphate poisoning but is not a purely muscarinic effect. Therefore, bradycardia is a classic and reliable indicator of muscarinic overstimulation.

Question 42. Which antibiotic can be administered to a patient with diabetes who develops a urinary tract infection (UTI) that is further complicated by hypotension unresponsive to intravenous fluids?

A. Piperacillin- Tazobactam

B. Amoxicillin - Clavulanate

C. Ceftriaxone

D. Nitrofurantoin

Correct answer: A

Piperacillin- Tazobactam This patient has a complicated UTI that has progressed to septic shock (hypotension unresponsive to fluids). This is a life-threatening condition requiring broad-spectrum intravenous antibiotics that cover common uropathogens, including potentially resistant Gram-negative bacteria like Pseudomonas aeruginosa and E. coli. Piperacillin-tazobactam is an extended-spectrum penicillin combined with a beta-lactamase inhibitor, providing excellent coverage against a wide range of Gram-negative bacteria (including Pseudomonas), Gram-positive bacteria, and anaerobes. It is a first-line choice for empirical treatment of severe hospital-acquired infections and urosepsis. Ceftriaxone (C) is a good choice for community-acquired urosepsis but lacks reliable Pseudomonas coverage. Amoxicillin-clavulanate (B) has a more limited spectrum. Nitrofurantoin (D) is only used for uncomplicated cystitis and does not achieve adequate systemic or renal tissue levels for treating pyelonephritis or sepsis.

Question 43. Match the following drugs from Column A with their contra indications in Column B : A. Morphine 1. QT prolongation B. Amiodarone 2. Thromboembolism C. Vigabatrin 3. Pregnancy D. Estrogen prep- arations 4. Head injury

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

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

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

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

Correct answer: B

a-4, b-1, c-3, d-2 A. Morphine is a potent opioid analgesic. It is contraindicated in patients with a head injury (4) because it can cause respiratory depression (leading to increased , vasodilation, and increased intracranial pressure), miosis (masking pupillary signs), and sedation (confounding neurological assessment). B. Amiodarone is a class III antiarrhythmic drug. A major and well-known cardiovascular side effect is QT prolongation (1) and the risk of developing torsades de pointes. C. Vigabatrin is an antiepileptic drug that can cause irreversible visual field defects. It is also teratogenic and thus relatively contraindicated in pregnancy (3), to be used only if the benefits outweigh the significant risks. D. Estrogen preparations, such as in oral contraceptives or hormone replacement therapy, are known to increase the risk of venous thromboembolism (2) (deep vein thrombosis and pulmonary embolism) and are contraindicated in women with a history of such events.

Question 44. What is the most appropriate management for a young man who was stung by a scorpion 2 hours ago and now presents with hypertension (168/100 mm Hg), a heart rate of 72/min, respiratory rate of 32/min, and breathlessness?

A. Metoprolol

B. Ivabradine

C. Prazosin

D. Frusemide

Correct answer: C

Prazosin Scorpion envenomation (particularly from the red scorpion, Mesobuthus tamulus) can cause a massive release of catecholamines (adrenergic storm) and acetylcholine (cholinergic storm). The patient's presentation with severe hypertension, tachycardia (which may be masked by reflex bradycardia or cholinergic effects, hence the 72 bpm), and breathlessness (suggesting early pulmonary edema) is characteristic of an adrenergic crisis. The cornerstone of management is to block the effects of the excessive catecholamines. Prazosin, an alpha-1 adrenergic blocker, is the drug of choice. It causes vasodilation, which reduces both preload and afterload, effectively controlling the hypertension and helping to resolve the developing pulmonary edema. Beta-blockers like metoprolol (A) are contraindicated as unopposed alpha-stimulation can worsen hypertension. Ivabradine (B) only slows the heart rate. Furosemide (D) may be used later for pulmonary edema but does not address the underlying pathophysiology of vasoconstriction.

Question 45. Which medication is most likely to have caused hyperpigmentation of the palms and soles NODIA MEDINK

A. Nelfinavir

B. Emtricitabine

C. Abacavir

D. Zidovudine

Correct answer: B

E6, E7 The image displays the genome of the Human Papillomavirus (HPV). High-risk HPV types (like HPV-16 and HPV-18) are the primary cause of cervical cancer and other anogenital cancers. Their oncogenic potential is primarily attributed to two early viral proteins, E6 and E7. The E6 oncoprotein targets the tumor suppressor protein p53 for ubiquitination and degradation, thereby disrupting cell cycle arrest and apoptosis. The E7 oncoprotein targets the retinoblastoma tumor suppressor protein (pRb) for degradation. This releases the E2F transcription factor, which pushes the cell into the S phase of the cell cycle, promoting uncontrolled proliferation. The L1 and L2 proteins (C) are late genes that encode the major and minor capsid proteins, respectively, which are structural and not oncogenic. E1 and E2 (D) are involved in viral replication and transcription regulation.

Question 46. Which of the following statements about statins is incorrect?

A. Although HMG-CoA reductase inhibitors substantially reduce the risk of cardiovascular events, there is mild increase in lipoprotein-(a) [Lp(a)] levels.

B. These drugs should not be stopped even in severe conditions like injury, surgery, etc.

C. They can be given with verapamil and other enzyme inhibitors.

D. With the long-term use, there is a slight increase in the incidence of type 2 diabetes mellitus.

Correct answer: C

They can be given with verapamil and other enzyme inhibitors. Statins (HMG-CoA reductase inhibitors) are widely used to reduce LDL cholesterol and significantly lower the risk of cardiovascular events. However, they are metabolized primarily by the cytochrome P450 (especially CYP3A4) system. Drugs such as verapamil, erythromycin, clarithromycin, and certain azoles inhibit CYP3A4 and can increase statin plasma levels, thereby raising the risk of adverse effects like myopathy and rhabdomyolysis. Hence, caution or dose adjustment is required; they are not freely co-administered. Therefore, statement (C) is incorrect. 1. Statement (A) is generally true statins may slightly increase Lp(a) levels in some individuals, though cardiovascular risk overall decreases. 2. Statement (B) is largely correct statins are usually continued in most clinical situations, including perioperative settings, unless contra indications arise. 3. Statement (D) is also correct long-term statin therapy is associated with a small increased risk of type 2 diabetes mellitus.

Question 47. What is the mechanism of action of the drug given to a patient with hyperlipidemia who later develops gallstones?

A. Inhibits HMG CoA reductase

B. Activates PPAR alpha

C. Binds to deoxycholic acid

D. Decreases VLDL

Correct answer: B

Activates PPAR alpha The drug class most strongly associated with an increased risk of gallstones (cholelithiasis) as a side effect is the fibrates (e.g., gemfibrozil, fenofibrate). Fibrates are used to treat hypertriglyceridemia. Their mechanism of action is the activation of Peroxisome Proliferator-Activated Receptor alpha (PPAR- α). Activation of PPAR- α alters the transcription of genes involved in lipid metabolism, leading to increased lipoprotein lipase activity (clearing triglycerides) and decreased hepatic VLDL production. However, a significant side effect of this pathway is an increase in the cholesterol concentration in bile by promoting its excretion into the biliary tree. This supersaturation of bile with cholesterol predisposes the patient to the formation of cholesterol gallstones. HMG-CoA reductase inhibitors (A) are statins. Bile acid sequestrants (C) bind bile acids in the gut. Niacin primarily decreases VLDL synthesis (D).

Question 48. Choose the correct statements regarding the method of delivery and bioavailability for each mode : (1) Intravenous administration = Bioavailability of 1 (2) Oral administration = Bioavailability between 0.75 and 1 (3) Intramuscular (IM) administration = Bioavailability between 0.75 and 1 (4) Subcutaneous (SC) administration = Bioavailability between 0.75 and 1

A. 1,2,4

B. 1,3,4

C. 1 and 3

D. 1 and 4

Correct answer: B

1,3,4 Bioavailability is the fraction of an administered drug that reaches the systemic circulation unchanged. (1) Intravenous (IV) administration bypasses absorption entirely, delivering the drug directly into the bloodstream. By definition, its bioavailability is 100%, or a fraction of 1. This statement is correct. (2) Oral administration is subject to incomplete absorption and first-pass metabolism in the gut wall and liver. Its bioavailability is highly variable and often significantly less than 1. The range 0.75 to 1 is not universally true; it can be much lower. This statement is incorrect. (3) Intramuscular (IM) administration and 4) Subcutaneous (SC) administration involve injection into vascularized tissue, leading to rapid and often complete absorption, bypassing first-pass metabolism. Their bioavailability is typically high and reliable, often falling within the range of 0.75 to ≤1. These statements are considered correct in general terms.

Question 49. What is the most efficient oral medication for quitting smoking?

A. Varenicline

B. Cevimeline

C. Muscarine

D. Atropine

Correct answer: A

Varenicline Varenicline (brand name Chantix/Champix) is widely considered the most effective single oral pharmacotherapy for smoking cessation. It is a partial agonist at the α 4 β 2 nicotinic acetylcholine receptor, the primary receptor involved in nicotine addiction. As a partial agonist, it has a dual mechanism : it provides a low to moderate level of dopamine release, which alleviates withdrawal symptoms and cravings (agonist effect), and it simultaneously blocks nicotine from binding to the receptor, which reduces the rewarding and pleasurable effects of smoking if the person relapses (antagonist effect). This dual action makes it more effective than other treatments like bupropion or nicotine replacement therapy. Cevimeline (B) is a muscarinic agonist for dry mouth. Muscarine (C) is a toxin. Atropine (D) is a muscarinic antagonist.

Question 50. Which enzymes does Finasteride inhibit in order to treat male-pattern baldness?

A. Aromatase

B. 17-hydrolase

C. 5-alpha reductase

D. Phosphodiesterase

Correct answer: C

5-alpha reductase Finasteride is a medication used to treat benign prostatic hyperplasia (BPH) and androgenetic alopecia (male-pattern baldness). Its mechanism of action is the specific inhibition of the enzyme 5-alpha reductase. This enzyme is responsible for converting testosterone into its more potent androgen, dihydrotestosterone (DHT). In genetically predisposed hair follicles, DHT is the primary androgen that causes miniaturization of the follicles, leading to the characteristic pattern of hair loss. By inhibiting 5-alpha reductase, finasteride significantly reduces the levels of DHT in the scalp and serum, which slows or reverses the process of hair follicle miniaturization and promotes hair regrowth. Aromatase (A) converts androgens to estrogens. Phosphodiesterase inhibitors (D) are used for erectile dysfunction and pulmonary hypertension.

Question 51. Match the following antiarrhythmic drugs with their corresponding mechanisms of action. 1. Na+ channel blocker a. Quini- dine 2. K+ channel blocker b. Digoxin 3. Na+/K+ ATPase inhibitor c. Esmolol 4. Beta-blocker d. Ibutilide

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

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

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

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

Correct answer: C

1-a, 2-d, 3-b, 4-c 1 Quinidine (a) is a classic Class IA antiarrhythmic drug, whose primary mechanism is blocking voltage-gated Na+ channels (1). 2 Ibutilide (d) is a Class III antiarrhythmic drug. Its primary mechanism is blocking the rapid component of the delayed rectifier K+ channel (IKr) (2), which prolongs the action potential duration and effective refractory period. 3 Digoxin (b) is a cardiac glycoside. Its primary mechanism of action is the inhibition of the Na+/K+ ATPase pump (3) in cardiac myocytes. This leads to an increase in intracellular sodium, which in turn increases intracellular calcium via the Na+/Ca2+ exchanger, resulting in increased contractility. 4 Esmolol (c) is a cardioselective beta-1 adrenergic receptor blocker (4). It is a Class II antiarrhythmic drug that acts by decreasing sympathetic stimulation of the heart.

Question 52. Match the drugs with their respective targets of action. a. Trastuzumab 1. BCR-ABL tyrosine ki- nase b. Infliximab 2. mTOR c. Sirolimus 3. TNF alpha d. Imatinib 4. HER2/neu

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

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

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

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

Correct answer: D

a-4, b-3, c-2, d-1 a. Trastuzumab is a monoclonal antibody specifically designed to target the

HER2/neu (Human Epidermal growth factor Receptor 2) receptor (4), which is overexpressed in some types of breast and gastric cancer. b. Infliximab is a chimeric monoclonal antibody that binds to and neutralizes TNF-alpha (Tumor Necrosis Factor-alpha) (3), a pro-inflammatory cytokine. It is used to treat autoimmune diseases like rheumatoid arthritis and Crohn's disease. c. Sirolimus (also known as Rapamycin) is an immunosuppressant drug that works by inhibiting the mTOR (mammalian Target Of Rapamycin) protein kinase (2), which is a crucial regulator of cell growth, proliferation, and survival. d. Imatinib is a small molecule tyrosine kinase inhibitor. Its primary target is the BCR-ABL fusion protein (1), the constitutively active tyrosine kinase that is the hallmark of Chronic Myeloid Leukemia (CML). FORENSIC MEDICINE

Question 53. What is the preferred treatment for acute arsenic poisoning?

A. Dimercaprol

B. Ipecac

C. Penicillamine

D. Activated charcoal

Correct answer: A

Dimercaprol The treatment for acute heavy metal poisoning, such as from arsenic, involves the use of chelating agents. Dimercaprol, also known as British Anti-Lewisite (BAL), is the primary and preferred chelating agent for acute, severe arsenic poisoning. It works by forming a stable, non-toxic complex with arsenic, which is then excreted by the kidneys. Dimercaprol has sulfhydryl groups that bind avidly to the arsenic, preventing it from binding to and inactivating essential cellular enzymes that also contain sulfhydryl groups. It should be administered promptly via deep intramuscular injection. Penicillamine (C) is an oral chelator used more for copper, lead, and mercury poisoning. Activated charcoal (D) is not effective as it does not bind well to metals like arsenic. Ipecac (B) to induce emesis is no longer recommended.

Question 54. Which of the following is not a cardiac poison?

A. Atropa belladonna

B. Aconite

C. Cerbera thevetia

D. Nicotiana tabacum

Correct answer: D

Nicotiana tabacum Aconite (Aconitum) and Cerbera thevetia (Yellow oleander) are well-known cardiac poisons. Aconite contains aconitine, which acts on voltage-gated sodium channels and produces serious cardiac arrhythmias. Cerbera thevetia contains cardiac glycosides (similar to digoxin) that directly affect the myocardium, leading to bradycardia, heart block, and fatal arrhythmias. Atropa belladonna contains atropine and other anticholinergic alkaloids. Although its primary action is anticholinergic (causing tachycardia, dry mouth, dilated pupils), severe poisoning can significantly affect cardiac rhythm. Hence, it is often grouped among poisons that

can impact cardiac function. Nicotiana tabacum (tobacco) contains nicotine, which primarily acts on nicotinic acetylcholine receptors affecting the autonomic nervous system. While it can influence heart rate and blood pressure, it is not classified as a primary cardiac poison like aconite or yellow oleander. Therefore, Nicotiana tabacum is not considered a classical cardiac poison.

Question 55. The hooch tragedy is related to which substance?

A. Phosphorus

B. Mercury

C. Ethanol

D. Methanol

Correct answer: D

Methanol "Hooch" is a colloquial term for illicitly brewed alcoholic beverages. "Hooch tragedies" refer to mass poisoning events that occur when these beverages are consumed. These tragedies are almost always caused by contamination of the illicit liquor with methanol (methyl alcohol). Methanol is sometimes added to increase the apparent strength of the beverage or is produced as a byproduct of improper distillation. Unlike ethanol (the alcohol in regular drinks), methanol is highly toxic. It is metabolized by alcohol dehydrogenase in the liver to formaldehyde and then to formic acid. The accumulation of formic acid causes severe metabolic acidosis and is specifically toxic to the optic nerve, leading to the characteristic symptom of blindness. Other effects include abdominal pain, coma, and death. MICROBIOLOGY

Question 56. What is the correct sequence of steps involved in extracting a desired protein through recombinant DNA technology? 1 Expression of protein and lysis of the bacterial cell 2 Incorporation of genes into bacteria 3 SDS PAGE 4 Protein elution 5 Hybridization

A. 2, 1, 3, 5, 4

B. 1, 2, 4, 3, 5

C. 1, 5, 2, 4, 3

D. 2, 4, 5, 3, 1

Correct answer: A

2, 1, 3, 5, 4 The accurate sequence of steps involved in extracting a desired protein using recombinant DNA technology is 2, 1, 3, 5, 4. First, the desired gene is incorporated into bacteria using a suitable vector such as a plasmid. This process allows the bacterial cell to carry the recombinant DNA, which contains the gene encoding the target protein. Next, the bacteria are cultured to express the desired protein, after which the cells are lysed to release the protein into the solution. The crude protein extract obtained from the lysed cells contains a mixture of bacterial and recombinant proteins. To analyze and confirm the presence and approximate molecular weight of the expressed protein, SDS-PAGE (Sodium Dodecyl Sulphate

Polyacrylamide Gel Electrophoresis) is performed. This technique separates proteins based on their size. Following this, hybridization is used to verify that the gene of interest has been successfully expressed by using a specific labeled probe. Finally, protein elution is carried out to purify the target protein from the mixture, usually through chromatographic techniques such as affinity chromatography or ion-exchange chromatography.

Question 57. Which technique is most appropriate for detecting mutations that occur at low allele frequencies?

A. Droplet digital PCR

B. FISH

C. Nested PCR

D. Sanger sequencing

Correct answer: A

Droplet digital PCR Detecting mutations that are present in only a small fraction of cells (low variant allele frequency, VAF) is a major challenge. Droplet Digital PCR (ddPCR) is an exceptionally sensitive technique perfectly suited for this task. In ddPCR, the PCR reaction mixture is partitioned into thousands or millions of tiny water-in-oil droplets. Each droplet acts as an individual micro-reactor, containing either zero or one (or very few) template DNA molecules. After PCR amplification, droplets containing the target sequence (either wild-type or mutant) will fluoresce. By counting the number of positive droplets for the mutant versus the wild-type allele, ddPCR provides an absolute quantification of the target DNA, allowing for the reliable detection of rare mutations with VAFs as low as 0.01% or even lower. Sanger sequencing (D) has a sensitivity limit of about 15-20% VAF. Nested PCR (C) increases sensitivity but is not quantitative. FISH (B) detects chromosomal abnormalities, not point mutations.

Question 58. Which of the following organisms can be identified using acid-fast staining? 1 Nocardia 2 Mycobacterium leprae 3 Actinomyces 4 Cryptosporidium parvum 5 Isospora belli

A. 1,2,3,4,5

B. 1,2,4,5

C. 1,2,3

D. 3,4,5

Correct answer: B

1,2,4,5 Acid-fast staining (like the Ziehl-Neelsen stain) is a differential stain used to identify organisms that have a waxy mycolic acid layer in their cell walls, which resists decolorization by acid-alcohol. 1 Nocardia species are bacteria that are filamentous and are characteristically weakly or partially acid-fast. 2 Mycobacterium leprae, like all mycobacteria, is strongly acid-fast due to its high mycolic acid content. 4 Cryptosporidium parvum and 5. Isospora belli are protozoan parasites whose oocysts have a cell wall that makes them acid-fast, which is a key

feature for their identification in stool samples. 3 Actinomyces is a gram-positive, filamentous bacterium, but it is not acid-fast. It is often confused with Nocardia morphologically, but the acid-fast stain is a crucial differentiating test. Therefore, organisms 1, 2, 4, and 5 are acid-fast.

Question 59. Which statement is true about the PCR method?

A. Detection and quantification of DNA

B. Detection and quantification of mRNA

C. Western blot is used

D. RNA is first converted to rDNA

Correct answer: A

Detection and quantification of DNA Polymerase Chain Reaction (PCR) is a molecular biology technique used to amplify specific segments of DNA. Standard PCR is a qualitative method used for the detection of a target DNA sequence. A variation of PCR, called Quantitative PCR or Real-Time PCR (qPCR), allows for the quantification of the amount of DNA present in a sample in real time. Therefore, PCR methods can be used for both detection and quantification of DNA. Statement (B) is partially correct in that RT-qPCR can detect and quantify mRNA, but it requires a preliminary reverse transcription step; the PCR part itself still works on DNA. Western blot (C) is a technique used to detect proteins, not nucleic acids. In Reverse Transcription PCR (RT-PCR), RNA is first converted into complementary DNA (cDNA), not recombinant DNA (rDNA) (D). page 457 INICET Examination Paper

Question 60. Which of the following pairs of diseases and their corresponding populations related to parvovirus B19 is incorrect?

A. Aplastic crises in sickle cell disease

B. Hydrops fetalis - Pregnant women

C. Erythema infectiosum - infants

D. Non-erosive arthritis - Patients with SLE

Correct answer: C

Erythema infectiosum - infants Parvovirus B19 has a tropism for erythroid progenitor cells in the bone marrow and can cause a spectrum of diseases. (A) Correct. In patients with underlying hemolytic anemias like sickle cell disease, B19 infection can cause a transient but severe cessation of erythropoiesis, leading to an aplastic crisis. (B) Correct. If a non-immune pregnant woman is infected, the virus can cross the placenta, infect the fetus, cause severe anemia and heart failure, leading to hydrops fetalis and fetal death. (D) Correct. In adults, especially women, B19 infection is a common cause of acute, symmetrical, non-erosive polyarthritis, which can mimic rheumatoid arthritis or an SLE flare. (C) Incorrect. Erythema infectiosum, or "fifth disease," is the classic "slapped-cheek" rash caused by B19. However, it is most common in school-aged children (typically 4-10 years old), not infants.

Question 61. According to the National Tuberculosis Elimination Program (NTEP), what criterion is used to label a district as a high-priority district based on the prevalence of HIV–TB co-infection?

A. >10%

B. >12%

C. >15%

D. >20%

Correct answer: C

>15% Under the National Tuberculosis Elimination Program (NTEP), districts are stratified based on the burden of HIV–TB co-infection to prioritize intensified collaborative TB–HIV activities. A district is labeled as a high-priority district when the prevalence of HIV among TB patients exceeds 15%. This classification helps in strengthening integrated TB–HIV services such as: 1. Routine HIV testing for all TB patients 2. Early initiation of antiretroviral therapy (ART) 3. Cotrimoxazole preventive therapy (CPT) 4. Bidirectional screening (TB screening in PLHIV and HIV testing in TB cases) The rationale behind this threshold is that HIV significantly increases the risk of progression from latent TB infection to active TB disease. Therefore, districts with HIV–TB co-infection rates above 15% require enhanced surveillance, intensified case finding, and closer programmatic monitoring. Thus, according to NTEP guidelines, the criterion for designating a district as high priority based on HIV–TB co-infection prevalence is greater than 15%.

Question 62. In a culturally and linguistically diverse country like India, what steps should a physician take to communicate effectively with patients and ensure better treatment outcomes? 1 Insist on good communication 2 Insist on communication only via an interpreter Click Here to Buy book on Amazon MEDINK 117. Which of the following factors does NOT lead to the development of central cyanosis?

A. Pulmonary arteriovenous fistula

B. Hypothermia

C. High altitude

D. Methemoglobinemia

Correct answer: B

Hypothermia Central cyanosis is a bluish discoloration of the skin and mucous membranes (especially the tongue and lips) caused by an increased concentration of deoxygenated hemoglobin (>5 g/dL) in the arterial blood. It results from inadequate oxygenation of blood in the lungs or from right-to-left shunting of blood. High altitude (C) causes hypoxemia and central cyanosis. A pulmonary arteriovenous fistula (A) is a right-to-left shunt that allows deoxygenated blood to bypass the pulmonary capillaries, causing central cyanosis. Methemoglobinemia (D) is a condition where iron in hemoglobin is oxidized to the ferric () state, which cannot bind

oxygen, leading to functional anemia and central cyanosis. Hypothermia (B) typically causes peripheral cyanosis. Severe cold causes intense peripheral vasoconstriction, slowing blood flow in the extremities. This allows more time for oxygen extraction by tissues, increasing deoxygenated hemoglobin in the peripheral capillary beds, but arterial oxygen saturation remains normal. 118. Which of the following drugs is not used for the immediate management of hyperkalemia? (A) 10% calcium gluconate over 10 min (B) Salbutamol nebulisation (C) Insulin-dextrose (D) Injection MgSO 4 AAns (D) Injection MgSO 4 The immediate management of severe hyperkalemia focuses on three goals : stabilizing the cardiac membrane, shifting potassium into cells, and removing potassium from the body. Intravenous calcium gluconate (A) is the first-line emergent treatment to stabilize the cardiac membrane and prevent life-threatening arrhythmias, although it does not lower the serum potassium level. Insulin-dextrose (C) and nebulized salbutamol (B) are rapid-acting therapies that work by shifting potassium from the extracellular fluid into the intracellular compartment. Magnesium sulfate (MgSO 4) (D), however, is not a standard immediate treatment for hyperkalemia. While hypomagnesemia can impair potassium excretion and should be corrected, MgSO 4 is primarily used for treating torsades de pointes, pre-eclampsia/eclampsia, and as a bronchodilator in severe asthma. It does not have a direct, rapid potassium-lowering effect. 119. A patient with HIV and a CD4 count of 200 cells/cu.mm presents with a 5-day history of high-grade fever and cough, without chills, rigors, diarrhea, vomiting, or neck stiffness. The chest X-ray appears normal. Given this clinical scenario, which of the following treatment options is appropriate? (A) Amoxicillin-clavulanic acid + Azithromycin (B) Co-trimoxazole + steroids (C) Co-trimoxazole only (D) Antitubercular treatment AAns (C) Co-trimoxazole only The patient is immuno compromised (CD4 count ≤ 200 cells/mm^3), and the presentation of fever and cough, even with a normal chest X-ray, is highly suspicious for Pneumocystis jirovecii pneumonia (PCP). PCP is the most common opportunistic infection in patients with AIDS, and a normal chest X-ray is seen in up to 25% of cases. The treatment of choice for mild to moderate PCP is high-dose co-trimoxazole (trimethoprim-sulfamethoxazole). Systemic corticosteroids (B) are added to co-trimoxazole only in cases of moderate to severe PCP, defined by an arterial partial pressure of oxygen (PaO 2) < 70 mmHg or an A-a gradient > 35 mmHg, to reduce inflammation and improve outcomes. Since this patient's severity is not specified as moderate-to-severe, co-trimoxazole alone is the most appropriate initial choice. Standard antibiotics for community-acquired pneumonia (A) and antitubercular treatment (D) are less likely given the specific context. 120. Identify the conduction abnormality indicated in the ECG provided. (A) First degree heart block (B) Ventricular tachycardia (C) Third degree heart block (D) Second degree heart block AAns (D) Second degree heart block On the ECG strip, there are visible P waves that are not followed by QRS complexes, indicating intermittent failure of atrioventricular (AV) conduction. Some atrial impulses are conducted to the ventricles, while others are blocked. This pattern is characteristic of a second-degree AV block. 1. In first-degree heart block, every P

wave is followed by a QRS complex, but the PR interval is prolonged. 2. In third-degree (complete) heart block, there is complete AV dissociation, with no relationship between P waves and QRS complexes. 3. Ventricular tachycardia would show rapid, wide QRS complexes without normal preceding P waves. 4. The ECG shown demonstrates dropped beats with intermittent conduction, consistent with second-degree AV block (likely Mobitz type I or II depending on PR behavior). Thus, the conduction abnormality indicated is second-degree heart block. 121. In a patient with mitral stenosis, the absence of a loud S1 fails to indicate which of the following conditions? (A) Calcified valve (B) Aortic regurgitation (C) First degree heart block (D) Mild mitral stenosis AAns (B) Aortic regurgitation In mitral stenosis (MS), a loud first heart sound (S1) is typically heard due to the forceful closure of thickened but still mobile mitral valve leaflets. The intensity of S1 depends mainly on valve mobility and the position of the leaflets at the onset of systole. The absence of a loud S1 in MS may indicate: 1. Calcified mitral valve (A) – When the valve becomes rigid and heavily calcified, it loses mobility, leading to a soft S1. 2. First-degree heart block (C) – A prolonged PR interval allows the mitral valve leaflets to drift toward closure before systole, reducing the intensity of S1. 3. Mild mitral stenosis (D) – In early or mild disease, the valve is not significantly thickened, so S1 may not be markedly loud. However, aortic regurgitation (B) does not directly affect the intensity of S1 in mitral stenosis. AR primarily produces an early diastolic murmur and does not influence mitral valve closure dynamics in a way that would abolish a loud S1. Therefore, the correct answer is (B) Aortic regurgitation. 122. In a 52-year-old man presenting with left-sided hemiparesis, which part of the internal capsule is most likely involved? (A) Retrolentiform (B) Sublentiform (C) Anterior limb (D) Posterior limb AAns (D) Posterior limb The internal capsule is a V-shaped white matter structure containing densely packed ascending and descending fiber tracts. The posterior limb of the internal capsule is a clinically critical area because it carries the corticospinal tracts, which are the major motor pathways controlling voluntary movement. A lesion, such as an ischemic stroke (lacunar infarct), in the posterior limb of the right internal capsule will interrupt these descending motor fibers, resulting in a contralateral (left-sided) hemiparesis or hemiplegia. The anterior limb (C) primarily carries frontopontine and thalamocortical fibers. The retrolentiform part (A) contains the optic radiations, and a lesion there would cause visual field defects. The sublentiform part (B) carries auditory radiations. Therefore, a pure motor hemiparesis is classically localized to a lesion in the contralateral posterior limb of the internal capsule. 123. Which sleep stage is indicated by the highlighted segments on the EOG, EEG, and EMG recordings during polysomnography? (A) REM sleep (B) NREM I sleep (C) NREM II sleep (D) NREM III sleep AAns (A) REM sleep The polysomnography findings are the classic triad for Rapid Eye Movement (REM) sleep. The electrooculogram (EOG) shows bursts of rapid, conjugate eye movements, which give this stage its name. The electroencephalogram (EEG) shows a low-voltage, mixed-frequency pattern that resembles the pattern of wakefulness, and it often contains characteristic "sawtooth" waves. Most importantly, the electromyogram (EMG), which

measures muscle tone, shows a dramatic reduction to its lowest point, a state known as atonia. This muscle paralysis prevents individuals from acting out their dreams. NREM sleep stages are characterized by the absence of rapid eye movements and progressively slower EEG waves (sleep spindles and K-complexes in N2, delta waves in N3), with preserved muscle tone. 124. In a patient exhibiting violent, flinging limb movements characteristic of hemiballismus, which anatomical site is responsible for the underlying lesion? (A) Putamen (B) Subthalamic nucleus (C) Caudate nucleus (D) Globus pallidus AAns (B) Subthalamic nucleus Hemiballismus is a hyperkinetic movement disorder characterized by involuntary, violent, flinging (ballistic) movements of the limbs on one side of the body. The classic neuroanatomical cause of hemiballismus is a lesion in the contralateral subthalamic nucleus (STN). The STN is a key component of the indirect pathway of the basal ganglia, which normally functions to inhibit unwanted movements. A lesion in the STN (often a small stroke or hemorrhage) disrupts this inhibitory pathway. This leads to reduced inhibitory output from the globus pallidus internus to the thalamus. The resulting disinhibition of the thalamus causes excessive excitatory output to the motor cortex, producing the characteristic large-amplitude, involuntary movements of hemiballismus. Lesions in the putamen (A), caudate (C), or globus pallidus (D) can cause other movement disorders like chorea or dystonia, but hemiballismus is specifically linked to the STN.

Question 63. What HPV vaccination schedule does WHO SAGE recommend for children aged 9 to 14 years?

A. 1 or 2 doses

B. 2 doses

C. 1 dose

D. 3 doses

Correct answer: A

1 or 2 doses In April 2022, the World Health Organization's Strategic Advisory Group of Experts on Immunization (WHO SAGE) updated its recommendations for the Human Papillomavirus (HPV) vaccine. Based on a review of evidence showing that a single dose provides strong protection against HPV, SAGE concluded that a one or two-dose schedule is effective for the primary target group of girls aged 9-14 years. This update allows for more flexibility in vaccination programs. A single-dose schedule, referred to as an alternative off-label schedule, can make vaccination programs more cost-effective and easier to implement, potentially increasing coverage rates globally. For older individuals (15-20 years), a 1 or 2 dose schedule is also recommended, while for those over 21, two doses with a 6-month interval are advised.

Question 64. What is the accurate statement regarding screening tests for genetic diseases?

A. It is always invasive

B. Screening test has better accuracy than diagnostic test

C. It defines risk of transmission of disease to the child

D. Screening requires genetic mapping

Correct answer: C

It defines risk of transmission of disease to the child Genetic screening tests are designed to assess the likelihood or risk that an individual or their offspring has or will develop a specific genetic condition. For example, prenatal screening tests like the dual marker test or non-invasive prenatal testing (NIPT) do not diagnose a condition but rather estimate the risk of the fetus having a chromosomal abnormality like Down syndrome. Statement (A) is incorrect; many screening tests, such as NIPT (maternal blood draw) or carrier screening, are non-invasive. Statement (B) is incorrect; screening tests are designed to be sensitive but are less accurate than definitive diagnostic tests (like amniocentesis or chorionic villus sampling). Statement (D) is incorrect; screening tests often measure biochemical markers or cell-free DNA and do not necessarily involve complete genetic mapping. Their primary purpose is to identify individuals who are at a higher risk and may warrant further, more invasive diagnostic testing.

Question 65. Which statement correctly describes preventive measures to reduce typhoid transmission in the community?

A. Typhoid vaccine administration is the best method of preventing transmission.

B. Hygiene practice and clean sanitation control is more important than the typhoid vaccine.

C. In 10% of cases, person-to-person transmission occurs.

D. Drug resistance in typhoid is not as big a problem as in TB.

Correct answer: B

Hygiene practice and clean sanitation control is more important than the typhoid vaccine. Typhoid fever is a water and food-borne disease caused by Salmonella Typhi. The primary mode of transmission is the fecal-oral route. Therefore, the most fundamental and effective long-term strategy for preventing typhoid in the community is ensuring access to safe drinking water, improving sanitation systems (especially sewage disposal), and promoting food and personal hygiene practices. These public health measures interrupt the transmission cycle at its source. While typhoid vaccines (A) are an important tool, especially for travelers, high-risk groups, and outbreak control, their efficacy is not 100%, and they do not replace the need for fundamental WASH (Water, Sanitation, and Hygiene) infrastructure. Person-to-person transmission can occur, but the percentage is variable (C). Drug resistance, especially multidrug resistance (MDR) and extensive drug resistance (XDR) in S. Typhi, is a major and growing global health crisis (D).

Question 66. Which statement correctly interprets the multivariate analysis shown in the table below, regarding how age, literacy, residence, and gender relate to the risk of blindness? Variables Age Odds ratio p-value <50y 1.1 <0.001 50-59y 1.2 <0.001 60-69y 1.5 <0.001 70-79y 1.6 <0.001 >80y 2.1 <0.001 Male 1.2 0.2 Female 0.3

<0.001 Rural 2.4 0.1 Urban 1 <0.001 Literate 0.4 <0.01 Illiterate 1.2 <0.01 1 The female population is at greater risk of developing blindness. 2 People dwelling in rural areas are at increased risk of developing blindness. 3 The risk of developing blindness increases with age. 4 Illiteracy leads to an increased risk of developing blindness.

A. 2 and 3

B. 1 and 3

C. 1 and 2

D. 3 and 4

Correct answer: D

3 and 4 1 Incorrect. The Odds Ratio (OR) for females is 0.3, which is less than 1. This indicates that females have a reduced risk of blindness compared to the reference group (males). The p-value (<0.001) shows this is statistically significant. 2 Incorrect. The OR for rural residence is 2.4, suggesting an increased risk. However, the p-value is 0.1, which is greater than the conventional threshold for statistical significance ($p<0.05$). Therefore, we cannot confidently conclude that this increased risk is not due to chance. 3 Correct. The table shows a clear trend of increasing OR with increasing age (1.1, 1.2, 1.5, 2.1). For the >80y group, the OR is 2.1 with a p-value <0.001, indicating a statistically significant increased risk with age. 4 Correct. The OR for illiteracy is 1.2 with a p-value <0.01. This indicates that illiterate individuals have a statistically significant 20% increased risk of blindness compared to literate individuals. Therefore, statements 3 and 4 are the only ones accurately and significantly supported by the data.

Question 67. Which indicator helps assess how effectively the health system detects leprosy cases in the community?

A. Treatment completion rate

B. Annual new case detection rate per lac

C. Treatment initiation rate

D. Proportion of newly diagnosed patients with grade 2 disability

Correct answer: D

Proportion of newly diagnosed patients with grade 2 disability The proportion of newly diagnosed leprosy patients presenting with Grade 2 disability (G2D) is a key indicator of the effectiveness of a leprosy control program in early case detection. Grade 2 disability includes visible deformities like claw hands, foot drop, lagophthalmos, or severe visual impairment. A high proportion of new cases with G2D suggests that the health system is failing to detect cases early, meaning patients are only diagnosed after significant and irreversible nerve damage has already occurred. Conversely, a low or declining G2D rate among new cases indicates that the program is succeeding in early detection and treatment, which is crucial for

preventing disability. The annual new case detection rate (B) reflects disease transmission, while treatment completion (A) and initiation (C) rates measure the quality of care after diagnosis, not the timeliness of detection.

Question 68. Which of the following is NOT a mode of transmission for abdominal tuberculosis?

A. Direct spread from mesenteric lymph nodes

B. Hematogenous spread

C. Feco-oral route

D. Direct contact with infected animal

Correct answer: D

Direct contact with infected animal Abdominal tuberculosis (TB) can involve the peritoneum, intestines, mesenteric lymph nodes, and solid abdominal organs. It occurs through several recognized mechanisms of spread. 1. Direct spread from mesenteric lymph nodes (A) is a known route. Infected mesenteric nodes may rupture or extend infection to adjacent intestinal loops or peritoneum. 2. Hematogenous spread (B) is another important mechanism. Mycobacterium tuberculosis may disseminate from a primary pulmonary focus through the bloodstream and later localize in the abdomen. 3. Feco-oral route (C) is also a documented pathway. Ingestion of infected sputum in pulmonary TB or consumption of contaminated milk (historically with Mycobacterium bovis) can lead to intestinal TB. 4. However, direct contact with an infected animal (D) is not considered a typical mode of transmission for abdominal TB. While M. bovis infection may occur through ingestion of contaminated animal products, simple contact with animals does not transmit abdominal tuberculosis. Therefore, the correct answer is (D).

Question 69. Which of the following statements accurately describes the vaccine vial monitor (VVM)? 1 It is used for monitoring heat exposure of the vaccine by healthcare workers in primary healthcare. NODIA page 453 INICET Examination Paper 2 It shows cumulative exposure of the vaccine to the heat. 3 It can be used to assess the potential efficacy of the vaccine 4 Calcification of the expiry date can be done using VVM. 5 The expiry date of the vaccine can be relaxed if VVM is an acceptable range. 6 If the square and the circle are the same in color, then the vaccine can be safely used.

A. 3,4

B. 1,2

C. 1, 2, 3, 4, 5

D. 5,6

Correct answer: B

1,2 A Vaccine vial monitor (VVM) is a small heat-sensitive label attached to vaccine vials that

changes color with cumulative heat exposure over time. Statement-wise analysis: 1 Correct. VVM helps healthcare workers, especially at the primary healthcare level, monitor whether a vaccine has been exposed to excessive heat during storage or transport. 2 Correct. The color change is irreversible and reflects the cumulative heat exposure the vaccine has experienced during the cold chain. 3 Incorrect. VVM does not directly assess vaccine efficacy. It only indicates whether the vaccine may have been damaged due to heat exposure. 4 Incorrect. VVM does not calculate or modify the expiry date. Expiry date and VVM are independent parameters. 5 Incorrect. The expiry date cannot be relaxed even if the VVM is within the acceptable range. The vaccine must be discarded if either the expiry date has passed or the VVM indicates discard. 6 Incorrect. If the inner square is the same color as or darker than the outer circle, the vaccine must be discarded. It is usable only when the inner square is lighter than the outer circle. Therefore, the correct option is (B) 1, 2.

Question 70. Match the following scientists with their respective discoveries. 1. Walter Reed a. Prevention of scurvy by citrus fruits 2. Edward Jenner b. Yellow fever 3. James Lind c. Smallpox vaccina- tion

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

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

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

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

Correct answer: D

1-b, 2-c, 3-a 1 Walter Reed (1) was a U.S. Army physician who led a commission in the early 1900s that confirmed the theory of Cuban physician Carlos Finlay that Yellow Fever (b) is transmitted by mosquitoes (Aedes aegypti), rather than by direct contact. This discovery was pivotal in controlling the disease. 2 Edward Jenner (2), an English physician, is known as the father of immunology. In 1796, he pioneered the concept of vaccination by demonstrating that inoculation with cowpox material could protect against the related but much deadlier disease of smallpox. This led to the development of the smallpox vaccine (c). 3 James Lind (3), a Scottish naval surgeon, conducted one of the first known clinical trials in 1747. He systematically studied the effect of different diets on sailors suffering from scurvy and discovered that the disease could be prevented and treated by including citrus fruits (a) in their diet.

Question 71. According to the Anemia Mukt Bharat guidelines, what is the advised management for pregnant women under 34 weeks of gestation who have mild to moderate anemia?

A. 2 iron and folic acid (IFA) tablets OD

B. IV iron sucrose for non-compliance with oral tablets

C. 2 iron and folic acid tablets OD + IV iron sucrose

D. IM ferric carboxy maltose (FCM)

Correct answer: A

2 iron and folic acid (IFA) tablets OD The Anemia Mukt Bharat (AMB) strategy provides clear guidelines for managing anemia during pregnancy. For a pregnant woman diagnosed with mild to moderate anemia (Hemoglobin 7.0-10.9 g/dL) before 34 weeks of gestation, the recommended first-line treatment is therapeutic oral iron supplementation. The standard regimen is two tablets of Iron and Folic Acid (IFA) taken once daily (OD). Each tablet typically contains 100 mg of elemental iron and 500 mcg of folic acid, providing a daily therapeutic dose of 200 mg of elemental iron. This regimen is continued for three months, followed by one IFA tablet daily for the remainder of the pregnancy and postpartum period. Intravenous iron (B, C, D) is generally reserved for cases of severe anemia (Hb <7 g/dL), non-compliance or intolerance to oral therapy, or when a rapid increase in hemoglobin is needed late in pregnancy. ENT

Question 72. Arrange the following in the sequence of auditory pathway : 1 Cochlear nucleus 2 Spiral ganglion 3 Superior olivary nucleus 4 Inferior colliculus 5 Medial geniculate body

A. 1-2-3-4-5

B. 5-4-3-2-1

C. 2-1-3-4-5

D. 3-4-5-1-2

Correct answer: C

2-1-3-4-5 The central auditory pathway processes sound information from the ear to the brain. The sequence begins with the hair cells in the cochlea, which transduce sound vibrations into neural signals. These first-order neurons have their cell bodies in the spiral ganglion (2). Their axons form the cochlear nerve, which travels to the brainstem and synapses in the cochlear nucleus (1). From the cochlear nucleus, second-order neurons ascend bilaterally, with many fibers crossing over to and synapsing in the superior olivary nucleus (3), which is crucial for localizing sound. The pathway then continues upward through the lateral lemniscus to the inferior colliculus (4) in the midbrain, a major auditory processing center. From there, fibers project to the medial geniculate body (5) of the thalamus, which serves as the final relay station before projecting to the primary auditory cortex in the temporal lobe.

Question 73. A 35-year-old woman presents with nasal obstruction and post-nasal drip. Five years ago, she underwent FESS with uncinectomy and maxillary ostium dilation after failed medical management. Her current DNE shows patent ostia but swollen maxillary sinus mucosa. What should be the next best step in her management?

A. Steroid irrigation and antihistamines

B. Repeat surgery

C. Macrolides for 4 months

D. Biological therapy

Correct answer: A

Steroid irrigation and antihistamines The patient presents with symptoms of chronic rhinosinusitis (CRS) despite a previous, apparently successful, surgery (patent ostia). The underlying issue is persistent mucosal inflammation, not a structural blockage. Therefore, the most appropriate next step is to target this inflammation with medical management. Topical intranasal corticosteroids, delivered via irrigation or high-volume nasal sprays, are the mainstay of treatment for CRS as they reduce mucosal inflammation and swelling directly. Adding oral antihistamines can help manage any allergic component contributing to her symptoms like post-nasal drip. Repeat surgery (B) is not indicated as the ostia are open. Long-term macrolides (C) have an immuno modulatory effect but are generally considered for CRS with nasal polyps and after topical steroids have been optimized. Biological therapy (D) is reserved for severe, recalcitrant CRS with polyposis, typically type 2 inflammation, and is not a first-line choice in this scenario.

Question 74. Which of the following tests is not used for testing olfaction?

A. Smell diskettes

B. Arnold stick test

C. UPSIT

D. CC-SIT

Correct answer: B

Arnold stick test Several standardized tests are used to assess the sense of smell (olfaction). The University of Pennsylvania Smell Identification Test (UPSIT) (C) is a widely used "scratch and sniff" test with 40 microencapsulated odorants. The Cross-Cultural Smell Identification Test (CC-SIT) (D) is a shorter, 12-item version of the UPSIT designed for cross-cultural use. Smell diskettes (A) are another method using odor-impregnated discs for identification. These tests all specifically evaluate the function of the olfactory nerve (CN I). The Arnold stick test, however, is not a test of olfaction. It is a simple clinical test used to assess the patency of the Eustachian tube. In this test, a saccharin particle is placed near the nasopharyngeal opening of the Eustachian tube, and the patient is observed for the time it takes to perceive a sweet taste, indicating that the tube is functioning and has transported the particle to the pharynx. OPHTHALMOLOGY

Question 75. After an acute episode of angle-closure glaucoma, which triad of symptoms is typically observed?

A. Vogt's triad

B. Virchow triad

C. Hutchinson's triad

D. Gaucher triad

Correct answer: A

Vogt's triad An acute attack of angle-closure glaucoma is an ophthalmic emergency characterized by a sudden, severe rise in intraocular pressure (IOP). After the acute episode resolves, characteristic signs of previous ischemic damage can be observed on slit-lamp examination. These signs are collectively known as Vogt's triad. The triad consists of : 1) Glaukomflecken, which are small, grey-white opacities in the anterior subcapsular region of the lens, representing focal necrosis of lens epithelial cells from ischemia; 2) Iris atrophy, often appearing as spiral-shaped or patchy depigmentation of the iris stroma; and 3) a fixed, mid-dilated pupil that is non-reactive to light due to ischemic damage to the iris sphincter muscle. Virchow's triad (B) relates to thrombosis. Hutchinson's triad (C) is seen in congenital syphilis.

Question 76. Which of the listed conditions is associated with the presence of punched-out lesions on the retina?

A. Posterior staphyloma

B. Fundal coloboma

C. Congenital Rubella

D. Toxoplasmosis

Correct answer: D

Toxoplasmosis Ocular toxoplasmosis, caused by the protozoan Toxoplasma gondii, is the most common cause of infectious retinitis in immunocompetent individuals. The classic lesion is a focus of necrotizing retinochoroiditis. When this active lesion heals, it leaves a characteristic atrophic scar. This scar often appears as a well-demarcated, "punched-out" lesion with a pale, white scleral base and distinct, hyperpigmented borders due to reactive proliferation of the retinal pigment epithelium. These scars are often seen adjacent to an active, fluffy, white "headlight in the fog" lesion during a recurrence. Posterior staphyloma (A) is an outpouching of the posterior globe seen in high myopia. A coloboma (B) is a congenital gap or defect in ocular structures. Congenital rubella (C) is associated with a "salt-and-pepper" retinopathy, not punched-out scars.

Question 77. A 27-year-old woman presents with sudden vision loss in her right eye along with a relative afferent pupillary defect (RAPD), while the left eye appears normal. Which investigation should be performed next? 1 MRI of the brain and orbits, testing for Myelin Oligodendrocyte Glycoprotein (MOG) and Neuromyelitis Optica (NMO) antibodies, and Blood Sugar levels 2 MRI of the brain and orbits, and testing for Myelin Oligodendrocyte Glycoprotein (MOG) and Neuromyelitis Optica (NMO) antibodies 3 Testing for Myelin Oligodendrocyte Glycoprotein (MOG) and Neuromyelitis Optica (NMO) antibodies, and Blood Sugar levels 4 Blood Sugar levels

and Thyroid profile

A. 1, 2 and 3

B. 1 and 2

C. 2 and 3

D. 3 and 4

Correct answer: B

1 and 2 The clinical presentation of a young woman with acute, unilateral vision loss and a relative afferent pupillary defect (RAPD) is highly suggestive of optic neuritis. Optic neuritis can be the first presentation of multiple sclerosis (MS), or it can be associated with other demyelinating conditions like Neuromyelitis Optica Spectrum Disorder (NMOSD) or MOG-Antibody Disease (MOGAD). Therefore, an urgent MRI of the brain and orbits with gadolinium contrast is essential to confirm inflammation/demyelination of the optic nerve and to look for characteristic demyelinating lesions in the brain that would suggest MS. Concurrently, serological testing for specific antibodies, anti-Aquaporin-4 (for NMO) and anti-MOG, is crucial because the treatment and prognosis for these conditions differ significantly from MS. Blood sugar levels are also important to rule out diabetic papillopathy, making the comprehensive approach in option 1 the most thorough. Option 2 includes the most critical next steps.

Question 78. Which of the following is not characteristic of pterygium?

A. Rate of recurrence is 95%

B. It is a fibrovascular growth

C. The parts of a pterygium are the head, neck, and body

D. Has progressive and regressive types

Correct answer: A

Rate of recurrence is 95% A pterygium is a triangular or wing-shaped fibrovascular growth (B) of the conjunctiva that extends onto the cornea. It is strongly associated with chronic exposure to ultraviolet (UV) light. Anatomically, it is described as having a head (the apex on the cornea), a neck (over the limbus), and a body (the fleshy part on the conjunctiva) (C). Pterygia can be clinically classified as progressive (thick, fleshy, and actively growing) or regressive/atrophic (thin, attenuated, and stationary) (D). While the recurrence rate after simple surgical excision can be high, it is not 95%. With modern surgical techniques, such as excision with conjunctival autograft or amniotic membrane transplantation, combined with adjuvant therapies like mitomycin C, the recurrence rate is significantly reduced to a range of approximately 5-15%. A recurrence rate of 95% (A) is an extreme overstatement and therefore incorrect.

Question 79. A pregnant woman presents with fever, retro- orbital pain, headache, pulsatile proptosis of the right eye, and tinnitus, while her blood pressure and fundus exam are normal. Which anatomical structures are most likely affected?

A. Abducens nerve, Oculomotor nerve, Internal carotid artery

B. Oculomotor nerve, Internal carotid artery, Cavernous sinus

C. Abducens nerve, Internal carotid artery, Cavernous sinus

D. Abducens nerve, Oculomotor nerve, Internal carotid artery, Cavernous sinus

Correct answer: D

Abducens nerve, Oculomotor nerve, Internal carotid artery, Cavernous sinus This constellation of symptoms is highly suggestive of a pathology within the cavernous sinus, such as a carotid-cavernous fistula or cavernous sinus thrombosis, both of which can be precipitated by pregnancy. The cavernous sinus is a critical anatomical space that contains several important structures. Pulsatile proptosis (bulging of the eye that pulsates with the heartbeat) and tinnitus are classic signs of a high-flow carotid-cavernous fistula, where arterial blood from the internal carotid artery enters the venous sinus. The resulting congestion and increased pressure within the sinus affect the cranial nerves that traverse it. These include the oculomotor nerve (CN III), trochlear nerve (CN IV), ophthalmic (V1) and maxillary (V2) divisions of the trigeminal nerve, and the abducens nerve (CN VI). Involvement of these nerves would lead to ophthalmoplegia (paralysis of eye muscles). Therefore, all the listed structures are likely to be involved.

Question 80. Which of the following options does not exhibit a characteristic of keratoconus?

A. Haab's striae

B. Munson's sign

C. Irregular astigmatism

D. Scissoring reflex

Correct answer: A

Haab's striae Keratoconus is a progressive, non-inflammatory corneal ectasia where the cornea thins and bulges forward into a cone shape. This results in several characteristic clinical signs. Irregular astigmatism (C) is a hallmark feature due to the distorted corneal shape. The scissoring reflex (D) on retinoscopy is a classic finding caused by the irregular refraction of light from the cone. Munson's sign (B) is the V-shaped indentation of the lower eyelid by the conical cornea when the patient looks down. Haab's striae (A), however, are horizontal breaks in Descemet's membrane and are a sign of congenital glaucoma, caused by stretching of the cornea due to high intraocular pressure in infancy. The corneal striae seen in keratoconus are fine, vertical lines deep in the stroma, known as Vogt's striae. MEDICINE

Question 81. A male patient presents with a saddle-nose deformity along with cough, intermittent fever, and hemoptysis. Examination shows a perforated nasal septum and a pale granuloma. Chest X-ray reveals multiple cavities, and biopsy demonstrates granulomas with multinucleated giant cells and caseous necrosis. What is the most likely diagnosis?

A. Wegener's granulomatosis

B. Syphilis

C. Sarcoidosis

D. Tuberculosis

Correct answer: A

Wegener's granulomatosis The patient presents with a saddle-nose deformity, perforated nasal septum, cough, hemoptysis, and multiple lung cavities — a classic triad involving the upper respiratory tract, lower respiratory tract, and systemic features. Granulomatosis with polyangiitis is a necrotizing granulomatous vasculitis affecting small- to medium-sized vessels. It commonly presents with: 1. Chronic sinusitis and nasal ulceration 2. Septal perforation leading to saddle-nose deformity 3. Pulmonary nodules and cavitary lesions 4. Hemoptysis due to pulmonary involvement Histology typically shows necrotizing granulomas with multinucleated giant cells and vasculitis. Although caseous necrosis classically suggests tuberculosis, the combination of upper airway destruction, septal perforation, and multiple lung cavities strongly favors GPA. Syphilis can cause saddle nose but does not typically cause cavitary lung lesions. Sarcoidosis shows non-caseating granulomas. Tuberculosis does not usually cause nasal septal perforation with granulomatous vasculitis. Thus, the most likely diagnosis is Wegener’s granulomatosis (Granulomatosis with polyangiitis).

Question 82. Based on the pulmonary function test findings of a chronic smoker who has recently begun working in construction, what is the most probable diagnosis? Initial lung volumes : • FEV1 : 0.9L, • FVC : 1.9L, • FEV1/FVC ratio : 0.4 After bronchodilator administration : • FEV1 : 1.9L, • FVC : 3.9L, • FEV1/FVC ratio : 0.4

A. Vascular disease with bronchodilator reversibility

B. Restrictive lung disease with bronchodilator reversibility

C. Restrictive lung disease without bronchodilator reversibility

D. Obstructive disease with bronchodilator reversibility

Correct answer: D

Obstructive disease with bronchodilator reversibility The initial FEV1/FVC ratio is 0.47 (0.9/1.9), which is well below the normal threshold of 0.7-0.8. A reduced FEV1/FVC ratio is the defining characteristic of an obstructive lung disease like COPD or asthma. After administering a bronchodilator, the patient's FEV1 increased from 0.9 L to 1.9 L. This is an increase of 1.0 L, which is a significant improvement. The criteria for significant bronchodilator reversibility are an increase in FEV1 by at least 12% AND at least 200 mL from the baseline value. Here, the percentage increase is (1.0 L / 0.9 L) 100% = 111%, which is much greater than 12%. The absolute increase is 1000 mL, far exceeding 200 mL. Therefore, the patient has an obstructive pattern with marked bronchodilator reversibility, which is highly suggestive of asthma, or an asthma-COPD overlap syndrome.

Question 83. Which of the following statements regarding inflammatory bowel disease (IBD) is correct?

A. Skip lesions are present in Crohn's disease

B. Mucosal layers are involved in Crohn's while transmural involvement is seen in ulcerative colitis

C. Inflammatory bowel disease doesn't have a genetic predisposition

D. Crohn's is curable through surgical resection of the affected segment

Correct answer: A

Skip lesions are present in Crohn's disease Crohn's disease and ulcerative colitis are the two main forms of inflammatory bowel disease (IBD). Statement (A) is correct. Crohn's disease is characterized by discontinuous inflammation, meaning there can be areas of diseased bowel separated by segments of normal-appearing bowel. These are known as skip lesions. Statement (B) is incorrect; the inflammation in Crohn's disease is transmural (affecting the full thickness of the bowel wall), which can lead to complications like fistulas and strictures, while ulcerative colitis inflammation is typically limited to the mucosal and submucosal layers. Statement (C) is incorrect; there is a strong genetic predisposition for both forms of IBD. Statement (D) is incorrect; surgical resection can treat complications of Crohn's disease, but it is not curative, as the disease frequently recurs at the site of anastomosis or elsewhere in the bowel.

Question 84. A patient is admitted to the hospital displaying symptoms of fever and chills. After conducting a fever profile test, both malaria and dengue are excluded as potential causes. The positive result of the Rk39 test indicates a specific condition. Which of the following treatments is most appropriate for managing this condition?

A. Amphotericin B

B. Griseofulvin

C. Dapsone

D. Hydroxychloroquine

Correct answer: A

Amphotericin B The Rk39 test is a rapid immuno chromatographic test that detects antibodies against a specific recombinant antigen (k39) of Leishmania donovani. A positive Rk39 test is highly specific and sensitive for the diagnosis of Visceral Leishmaniasis (VL), also known as Kala-azar. This disease typically presents with prolonged fever, chills, weight loss, and massive splenomegaly. The first-line treatment for VL in many parts of the world, particularly in the Indian subcontinent where drug resistance is a problem, is liposomal Amphotericin B. It is highly effective and has a better safety profile than conventional amphotericin B. Griseofulvin (B) is an antifungal for skin infections. Dapsone (C) is used for leprosy. Hydroxychloroquine (D) is an antimalarial and immuno modulator.

Question 85. Which of the following statements about frostbite management is NOT

correct?

A. Antibiotics and analgesics not used

B. Amputation in severe cases

C. Rewarming is done

D. The area is dried and cleaned

Correct answer: A

Antibiotics and analgesics not used The management of frostbite is a multi-step process. The core of the treatment is rewarming (C) the affected part, which should be done rapidly in a circulating warm water bath (). The area should be gently cleaned and dried (D) to prevent infection. In severe cases with tissue necrosis and gangrene, delayed amputation (B) may be necessary after the extent of viable tissue is clearly demarcated. The statement that antibiotics and analgesics are not used (A) is incorrect. Rewarming is an extremely painful process, and potent analgesics, often opioids, are essential for pain management. Prophylactic antibiotics (topical or systemic) are also commonly used to prevent secondary infection of the damaged tissue, especially if blisters rupture. Therefore, analgesics are always used, and antibiotics are frequently used, making this statement false.

Question 86. Which of the following factors does NOT lead to the development of central cyanosis?

A. Pulmonary arteriovenous fistula

B. Hypothermia

C. High altitude

D. Methemoglobinemia

Correct answer: B

Hypothermia Central cyanosis is a bluish discoloration of the skin and mucous membranes (especially the tongue and lips) caused by an increased concentration of deoxygenated hemoglobin (>5 g/dL) in the arterial blood. It results from inadequate oxygenation of blood in the lungs or from right-to-left shunting of blood. High altitude (C) causes hypoxemia and central cyanosis. A pulmonary arteriovenous fistula (A) is a right-to-left shunt that allows deoxygenated blood to bypass the pulmonary capillaries, causing central cyanosis. Methemoglobinemia (D) is a condition where iron in hemoglobin is oxidized to the ferric () state, which cannot bind oxygen, leading to functional anemia and central cyanosis. Hypothermia (B) typically causes peripheral cyanosis. Severe cold causes intense peripheral vasoconstriction, slowing blood flow in the extremities. This allows more time for oxygen extraction by tissues, increasing deoxygenated hemoglobin in the peripheral capillary beds, but arterial oxygen saturation remains normal.

Question 87. Which of the following drugs is not used for the immediate management of hyperkalemia?

A. 10% calcium gluconate over 10 min

B. Salbutamol nebulisation

C. Insulin-dextrose

D. Injection MgSO 4

Correct answer: D

Injection MgSO 4 The immediate management of severe hyperkalemia focuses on three goals : stabilizing the cardiac membrane, shifting potassium into cells, and removing potassium from the body. Intravenous calcium gluconate (A) is the first-line emergent treatment to stabilize the cardiac membrane and prevent life-threatening arrhythmias, although it does not lower the serum potassium level. Insulin-dextrose (C) and nebulized salbutamol (B) are rapid-acting therapies that work by shifting potassium from the extracellular fluid into the intracellular compartment. Magnesium sulfate (MgSO 4) (D), however, is not a standard immediate treatment for hyperkalemia. While hypomagnesemia can impair potassium excretion and should be corrected, MgSO 4 is primarily used for treating torsades de pointes, pre-eclampsia/ eclampsia, and as a bronchodilator in severe asthma. It does not have a direct, rapid potassium-lowering effect.

Question 88. A patient with HIV and a CD4 count of 200 cells/cu.mm presents with a 5-day history of high-grade fever and cough, without chills, rigors, diarrhea, vomiting, or neck stiffness. The chest X-ray appears normal. Given this clinical scenario, which of the following treatment options is appropriate?

A. Amoxicillin-clavulanic acid + Azithromycin

B. Co-trimoxazole + steroids

C. Co-trimoxazole only

D. Antitubercular treatment

Correct answer: C

Co-trimoxazole only The patient is immuno compromised (CD4 count ≤ 200 cells/mm^3), and the presentation of fever and cough, even with a normal chest X-ray, is highly suspicious for Pneumocystis jirovecii pneumonia (PCP). PCP is the most common opportunistic infection in patients with AIDS, and a normal chest X-ray is seen in up to 25% of cases. The treatment of choice for mild to moderate PCP is high-dose co-trimoxazole (trimethoprim-sulfamethoxazole). Systemic corticosteroids (B) are added to co-trimoxazole only in cases of moderate to severe PCP, defined by an arterial partial pressure of oxygen (PaO 2) < 70 mmHg or an A-a gradient > 35 mmHg, to reduce inflammation and improve outcomes. Since this patient's severity is not specified as moderate-to-severe, co-trimoxazole alone is the most appropriate initial choice. Standard antibiotics for community-acquired pneumonia (A) and antitubercular treatment (D) are less likely given the specific context.

Question 89. In a patient with mitral stenosis, the absence of a loud S1 fails to

indicate which of the following conditions?

A. Calcified valve

B. Aortic regurgitation

C. First degree heart block

D. Mild mitral stenosis

Correct answer: B

Aortic regurgitation In mitral stenosis (MS), a loud first heart sound (S1) is typically heard due to the forceful closure of thickened but still mobile mitral valve leaflets. The intensity of S1 depends mainly on valve mobility and the position of the leaflets at the onset of systole. The absence of a loud S1 in MS may indicate: 1. Calcified mitral valve (A) – When the valve becomes rigid and heavily calcified, it loses mobility, leading to a soft S1. 2. First-degree heart block (C) – A prolonged PR interval allows the mitral valve leaflets to drift toward closure before systole, reducing the intensity of S1. 3. Mild mitral stenosis (D) – In early or mild disease, the valve is not significantly thickened, so S1 may not be markedly loud. However, aortic regurgitation (B) does not directly affect the intensity of S1 in mitral stenosis. AR primarily produces an early diastolic murmur and does not influence mitral valve closure dynamics in a way that would abolish a loud S1. Therefore, the correct answer is (B) Aortic regurgitation.

Question 90. In a 52-year-old man presenting with left-sided hemiparesis, which part of the internal capsule is most likely involved?

A. Retrolentiform

B. Sublentiform

C. Anterior limb

D. Posterior limb

Correct answer: D

Posterior limb The internal capsule is a V-shaped white matter structure containing densely packed ascending and descending fiber tracts. The posterior limb of the internal capsule is a clinically critical area because it carries the corticospinal tracts, which are the major motor pathways controlling voluntary movement. A lesion, such as an ischemic stroke (lacunar infarct), in the posterior limb of the right internal capsule will interrupt these descending motor fibers, resulting in a contralateral (left-sided) hemiparesis or hemiplegia. The anterior limb (C) primarily carries frontopontine and thalamocortical fibers. The retrolentiform part (A) contains the optic radiations, and a lesion there would cause visual field defects. The sublentiform part (B) carries auditory radiations. Therefore, a pure motor hemiparesis is classically localized to a lesion in the contralateral posterior limb of the internal capsule.

Question 91. In a patient exhibiting violent, flinging limb movements characteristic of hemiballismus, which anatomical site is responsible for the underlying lesion?

A. Putamen

B. Subthalamic nucleus

C. Caudate nucleus

D. Globus pallidus

Correct answer: B

Subthalamic nucleus Hemiballismus is a hyperkinetic movement disorder characterized by involuntary, violent, flinging (ballistic) movements of the limbs on one side of the body. The classic neuroanatomical cause of hemiballismus is a lesion in the contralateral subthalamic nucleus (STN). The STN is a key component of the indirect pathway of the basal ganglia, which normally functions to inhibit unwanted movements. A lesion in the STN (often a small stroke or hemorrhage) disrupts this inhibitory pathway. This leads to reduced inhibitory output from the globus pallidus internus to the thalamus. The resulting disinhibition of the thalamus causes excessive excitatory output to the motor cortex, producing the characteristic large-amplitude, involuntary movements of hemiballismus. Lesions in the putamen (A), caudate (C), or globus pallidus (D) can cause other movement disorders like chorea or dystonia, but hemiballismus is specifically linked to the STN.

Question 92. Which of the following is seen in MEN 2B syndrome?

A. Café au lait spot

B. Medullary thyroid carcinoma

C. Parathyroid adenoma

D. Optic nerve glioma

Correct answer: B

Medullary thyroid carcinoma Multiple Endocrine Neoplasia type 2B (MEN 2B) is the most aggressive form of the MEN2 syndromes, caused by a specific germline mutation in the RET proto-oncogene. The syndrome is defined by a characteristic triad of tumors. The most consistent and life-threatening feature is Medullary Thyroid Carcinoma (MTC), which develops in nearly 100% of patients, often in early childhood. The second component is pheochromocytoma, which occurs in about 50% of patients. The third component consists of characteristic physical features, including multiple mucosal neuromas (on the lips, tongue, and eyelids), a marfanoid habitus, and intestinal ganglioneuromatosis. Parathyroid adenoma/ hyperplasia (C) is the hallmark of MEN1 and MEN 2A, but is characteristically absent in MEN 2B. Café au lait spots (A) and optic nerve gliomas (D) are features of Neurofibromatosis type 1.

Question 93. What is the most probable diagnosis in a woman who presents with altered mental status, breathlessness, hypotension, bradycardia, and non-pitting edema of the limbs, along with a history of weight gain, constipation, cold intolerance, and heavy menstrual bleeding?

A. Septic shock

B. Cardiogenic shock

C. Myxedema coma

D. Hyperthyroidism

Correct answer: C

Myxedema coma The patient's long-standing history of weight gain, constipation, cold intolerance, and menorrhagia is classic for chronic, untreated hypothyroidism. The current presentation of altered mental state (coma or lethargy), respiratory distress (hypoventilation), hypotension, and bradycardia represents a severe, life-threatening decompensation of this condition, known as myxedema coma. The non-pitting edema (myxedema) is caused by the deposition of mucopolysaccharides in the dermis. Myxedema coma is a medical emergency often precipitated by an infection, cold exposure, or certain drugs in a patient with underlying hypothyroidism. Septic shock (A) and cardiogenic shock (B) typically present with tachycardia (though bradycardia can occur). Hyperthyroidism (D) would present with opposite symptoms like weight loss, heat intolerance, and tachycardia.

Question 94. What is the most probable underlying lesion in a patient who develops Horner’s syndrome and ipsilateral loss of facial pain and temperature, along with contralateral vertigo, numbness, anhidrosis, and dysarthria? 1 Medial medulla 2 Lateral medulla 3 Ventromedial medulla 4 Lateral medulla including nucleus ambiguus and spinothalamic tract

A. 2 and 4

B. 2,3,4

C. 1,2,3

D. 1 and 2

Correct answer: A

2 and 4 This constellation of symptoms is the classic presentation of Wallenberg syndrome, or Lateral Medullary Syndrome. This is caused by an infarct in the territory of the posterior inferior cerebellar artery (PICA), which supplies the lateral portion of the medulla. The specific signs and symptoms correspond to damage to structures within the lateral medulla : 1. Spinothalamic tract involvement causes contralateral loss of pain and temperature sensation in the body. 2. Spinal trigeminal nucleus involvement causes ipsilateral loss of pain and temperature on the face. 3. Nucleus ambiguus involvement causes ipsilateral paralysis of the palate, pharynx, and larynx, leading to dysphagia and dysarthria. 4. Descending sympathetic fibers involvement causes ipsilateral Horner's syndrome (ptosis, miosis, anhidrosis). 5. Vestibular nuclei involvement causes vertigo. Therefore, a lesion in the lateral medulla that includes the nucleus ambiguus and spinothalamic tract (4) is the precise location. Medial medullary syndrome (1, 3) presents differently, with contralateral hemiparesis and loss of proprioception.

Question 95. What is the most probable diagnosis in a female patient who has impaired pain and temperature sensation but preserved touch sensation, with

imaging revealing a cavity surrounding the central canal?

A. Brown-Sequard syndrome

B. Tabes dorsalis

C. Syringobulbia

D. Syringomyelia

Correct answer: D

Syringomyelia The diagnosis is syringomyelia, which is characterized by the formation of a fluid-filled cavity or syrinx within the spinal cord, typically in the cervical region. The syrinx often begins near the central canal and expands, damaging surrounding structures. The first fibers to be damaged are the spinothalamic tract fibers that decussate (cross over) in the anterior white commissure, just in front of the central canal. These fibers carry pain and temperature sensation. Their disruption leads to a bilateral, "cape-like" or "suspended" sensory loss of pain and temperature in the upper limbs and trunk, which is the classic hallmark of the disease. Because the dorsal columns, which carry proprioception, vibration, and fine touch, are located posteriorly and are spared initially, these sensations are preserved. This dissociated sensory loss is pathognomonic. Syringobulbia (C) is extension of the syrinx into the brainstem.

Question 96. In which condition is adrenocorticotropic hormone (ACTH) considered the treatment of choice?

A. Juvenile myoclonic epilepsy

B. Rolandic epilepsy

C. West syndrome

D. Lennox-Gastaut syndrome

Correct answer: C

West syndrome West syndrome, also known as infantile spasms, is a severe, age-specific epileptic encephalopathy of infancy. It is defined by a triad of infantile spasms, a characteristic EEG pattern called hypsarrhythmia, and developmental delay or regression. Adrenocorticotropic hormone (ACTH) is considered a first-line and the most effective treatment for West syndrome. It is administered as intramuscular injections over several weeks. While the exact mechanism is not fully understood, ACTH is thought to work by suppressing the release of corticotropin-releasing hormone (CRH), which may have a proconvulsant effect in the immature brain. High-dose oral corticosteroids (prednisolone) and vigabatrin are other first-line options. For other epilepsy syndromes like juvenile myoclonic epilepsy (A), rolandic epilepsy (B), or Lennox-Gastaut syndrome (D), other antiepileptic drugs are preferred.

Question 97. Which of the following cyanotic heart diseases causes increased pulmonary blood flow? 1 Ebstein anomaly 2 Tetralogy of Fallot 3 Transposition of the great arteries (TGA) 4 Total anomalous pulmonary venous communication (TAPVC)

A. 1,4

B. 1,2

C. 3,4

D. 2,4

Correct answer: C

3,4 Cyanotic congenital heart diseases can be broadly classified based on their effect on pulmonary blood flow (PBF). 1. Tetralogy of Fallot (2) is the classic example of cyanotic heart disease with decreased PBF due to right ventricular outflow tract obstruction (pulmonary stenosis). 2. Ebstein anomaly (1) typically presents with variable cyanosis and decreased PBF due to severe tricuspid regurgitation and right-to-left shunting at the atrial level. 3. Transposition of the Great Arteries (TGA) (3) involves parallel circulations. For the infant to survive, there must be mixing between the two circuits (e.g., via a PDA, VSD, or ASD). The pulmonary circulation arises from the low-pressure left ventricle, resulting in increased PBF. 4. Total Anomalous Pulmonary Venous Communication (TAPVC) (4) involves all four pulmonary veins draining into the systemic venous circulation instead of the left atrium. This mixed blood must then shunt to the left side of the heart. The entire cardiac output passes through the pulmonary circulation, leading to significantly increased PBF.

Question 98. Which of the following does not qualify as a diagnostic criterion for Systemic Inflammatory Response Syndrome (SIRS)?

A. Systolic blood pressure <90 mmHg

B. Temperature >38°C or <36°C

C. Respiratory rate >20 bpm

D. Heart rate >90/min

Correct answer: A

Systolic blood pressure <90 mmHg The Systemic Inflammatory Response Syndrome (SIRS) is a clinical state of generalized inflammation. The diagnosis of SIRS requires the presence of at least two of the following four criteria : 1 Temperature : >38°C (fever) or <36°C (hypothermia) (B). 2 Heart Rate : >90 beats per minute (tachycardia) (D). 3 Respiratory Rate : >20 breaths per minute or a PaCO2 <32 mmHg (tachypnea) (C). 4 White Blood Cell Count : >12,000 cells/ mm^3, <4,000 cells/mm^3, or >10% immature band forms. Hypotension (Systolic blood pressure <90 mmHg) (A) is not a criterion for SIRS itself. Instead, hypotension is a defining feature of shock. Sepsis is defined as SIRS in response to a documented infection, and severe sepsis is defined as sepsis with evidence of organ dysfunction, which can include hypotension.

Question 99. In which of the following spaces does the rupture of the penile urethra not result in the extravasation of blood?

A. Superficial perineal pouch

B. Anterior abdominal wall

C. Ischiorectal fossa

D. Skin around the scrotum

Correct answer: C

Ischiorectal fossa Rupture of the bulbous portion of the penile (spongy) urethra, a common straddle injury, occurs within the superficial perineal pouch. This pouch is bounded superiorly by the perineal membrane and inferiorly by the Colles' fascia. The Colles' fascia is continuous with the Scarpa's fascia of the anterior abdominal wall and the Dartos fascia of the scrotum and penis. Therefore, when the urethra ruptures, extravasated urine and blood are contained within this fascial plane and can spread into the superficial perineal pouch (A), upwards into the subcutaneous tissue of the anterior abdominal wall (B), and downwards into the scrotum (D). However, the Colles' fascia is firmly attached to the posterior border of the perineal membrane and to the fascia lata of the thigh, which prevents the extravasation from spreading posteriorly into the ischiorectal (ischioanal) fossa.

Question 100. By evaluating the respiratory component of the patient, which injury poses the greatest risk to their life?

A. Cervical spine injury

B. Tension pneumothorax

C. Blunt cardiac injury

D. Laryngotracheal injury

Correct answer: B

Tension pneumothorax In the context of the primary survey (ABCDE) of a trauma patient, life-threatening injuries must be identified and treated immediately. A tension pneumothorax is a critical, immediately life-threatening injury that compromises breathing and circulation. It occurs when a one-way valve air leak allows air to enter the pleural space but not exit, causing the lung to collapse and the mediastinum (including the heart and great vessels) to shift to the opposite side. This shift kinks the great vessels, obstructs venous return, and leads to rapid cardiovascular collapse and obstructive shock. It is a clinical diagnosis that requires immediate needle decompression followed by chest tube insertion, without waiting for an X-ray. While laryngotracheal injury (D) and high cervical spine injury (A) are also life-threatening airway/ breathing problems, tension pneumothorax is a classic example of a rapidly fatal chest injury identified in the 'B' (Breathing) assessment.

Question 101. A 32-year-old woman with Graves’ disease— showing ocular manifestations and thyroid enlargement—is planned for total thyroidectomy. Which preoperative measure should be used to minimize intraoperative bleeding?

A. Potassium iodide

B. Propranolol

C. Propylthiouracil

D. Betamethasone

Correct answer: A

Potassium iodide In preparing a patient with Grave's disease for thyroidectomy, the goal is to render the patient euthyroid to prevent thyroid storm and to reduce the vascularity of the gland to minimize intraoperative bleeding. While antithyroid drugs like Propylthiouracil (C) and beta-blockers like Propranolol (B) are used to control the hyperthyroid state and its symptoms, they do not decrease the gland's vascularity. A supersaturated solution of potassium iodide (SSKI) or Lugol's iodine is typically administered for 7-14 days before surgery. This has a specific effect known as the Wolff-Chaikoff effect, which acutely inhibits the synthesis and release of thyroid hormones. Crucially, it also markedly decreases the blood flow and vascularity of the thyroid gland, making it firmer and less friable, which significantly reduces intraoperative blood loss and facilitates the surgical procedure.

Question 102. Hand rub is a key component of standard hand hygiene and is effective in most situations. However, certain circumstances make its use inappropriate. In which setting should hand rub not be used according to standard hand-hygiene guidelines?

A. If the hands are visibly soiled Click Here to Buy book on Amazon page 459 INICET Examination Paper

B. While moving from a contaminated site to a clean site during patient care

C. Before donning on gloves

D. During direct patient contact

Correct answer: A

If the hands are visibly soiled Alcohol-based hand rubs are the preferred method for routine hand hygiene in most clinical situations because they are effective, efficient, and less irritating than soap and water. They are indicated before and after direct patient contact, before donning gloves, after contact with body fluids (if hands are not soiled), and when moving from a contaminated to a clean body site on the same patient. However, the one critical situation where hand rubs should not be used is when the hands are visibly soiled with dirt, blood, or other body fluids. In this case, the organic material can interfere with the antimicrobial action of the alcohol. The correct procedure in this scenario is to wash hands thoroughly with soap and water. Additionally, hand washing with soap and water is preferred after caring for patients with infectious diarrhea caused by spore-forming organisms like Clostridioides difficile, as alcohol is not effective against spores.

Question 103. For a patient brought to the emergency department after a road traffic accident, what is the correct sequence of management steps? 1 Cervical spine stabilization 2 Intubation 3 IV cannulation 4 CECT

A. 1, 3, 2, 4

B. 1, 2, 3, 4

C. 2, 1, 3, 4

D. 2, 1, 4, 3

Correct answer: B

1, 2, 3, 4 The management of a trauma patient follows the structured Advanced Trauma Life Support (ATLS) protocol, prioritizing life-threatening injuries in a specific order (A-B-C-D-E). A (Airway with cervical spine protection) : The very first step is to assess the airway. If the airway is compromised or at risk, intubation (2) is performed, but this must be done while maintaining cervical spine stabilization (1) to prevent worsening a potential spinal cord injury. These two actions happen concurrently. C (Circulation) : Once the airway and breathing are secured, the next priority is to assess circulation and control hemorrhage. This includes establishing large-bore IV cannulation (3) to administer fluids or blood products. D (Disability/Exposure) : After the primary survey and resuscitation are complete, and the patient is stabilized, further diagnostic imaging like a Contrast-Enhanced CT (CECT) scan (4) is performed as an adjunct to identify specific injuries. Therefore, the logical and standard sequence of management is 1, 2, 3, 4.

Question 104. What does the number 14Fr labeled on a Foley catheter represent?

A. Inner lumen diameter

B. Length of the tube

C. Outer tube diameter

D. Bulb size

Correct answer: C

Outer tube diameter The size of urinary catheters, as well as many other medical tubes, is measured using the French (Fr) catheter scale. The French scale is a measure of the outer diameter of the tube. One French unit is equal to one-third of a millimeter (1 Fr = 0.33 mm). Therefore, a 14 Fr Foley catheter has an outer diameter of 14 x (1/3) mm, which is approximately 4.7 mm. A larger French number indicates a larger outer diameter. The inner lumen diameter (A) will vary depending on the thickness of the catheter wall material. The length of the tube (B) and the size of the inflatable retention bulb (D), which is measured in cubic centimeters (cc) or milliliters (mL), are specified separately and are not indicated by the French size.

Question 105. A 49-year-old woman presents with a breast lump. Which of the following features is characteristic of basal-like breast cancer?

A. ER+, PR+, HER2-

B. ER+, PR-, HER2-

C. ER-, PR-, HER2-

D. ER-, PR-, HER2+

Correct answer: C

ER-, PR-, HER2- Breast cancers are classified into subtypes based on the expression of hormone receptors (Estrogen Receptor - ER, Progesterone Receptor - PR) and the human epidermal growth factor receptor 2 (HER2). Basal-like breast cancer is a major molecular subtype that is most often, though not perfectly, correlated with the immunohistochemical profile known as triple-negative breast cancer (TNBC). This profile is defined by the lack of expression of all three standard markers : Estrogen Receptor-negative (ER-), Progesterone Receptor-negative (PR-), and HER2-negative (HER2-). Basal-like cancers are typically high-grade, aggressive tumors that do not respond to hormonal therapies or HER2-targeted therapies, making chemotherapy the primary treatment modality. Options A and B represent luminal types (hormone-receptor-positive), and option D represents a HER2-enriched type.

Question 106. Which of the following is not a boundary of the “triangle of safety” used for ICD insertion in a patient with a pneumothorax on chest X-ray?

A. Lateral edge of pectoralis major

B. Mid-clavicular line

C. Base of axilla

D. Lateral border of latissimus dorsi

Correct answer: B

Mid-clavicular line The "triangle of safety" is the recommended anatomical landmark for the insertion of an intercostal drain (ICD) or chest tube to minimize the risk of injury to underlying structures like the lungs, heart, diaphragm, liver, or major blood vessels. The boundaries of this triangle are : 1. Anterior border : The lateral edge of the pectoralis major muscle. 2. Posterior border : The lateral border of the latissimus dorsi muscle. 3. Apex/Superior border : The base of the axilla (armpit). 4. Base/Inferior border : A horizontal line at the level of the 5th intercostal space (often corresponding to the level of the nipple in males). The mid-clavicular line is a landmark used for needle thoracentesis (needle decompression) for a tension pneumothorax, typically in the 2nd intercostal space, but it does not form a boundary of the triangle of safety for chest tube insertion.

Question 107. Which of the following cancers is correctly paired with the minimum number of lymph nodes required for proper pathological staging? A. Stomach cancer-10 B. Colon cancer-12 C. Gall bladder cancer -6 D. Breast cancer-15

A. B,C

B. A,B,C

C. A,C,D

D. A,B,C,D

Correct answer: B

A,B,C Adequate lymph node evaluation is essential for accurate pathological staging in many cancers. 1. Stomach cancer – 10 nodes (A) : For gastric carcinoma, at least 10–15 lymph nodes

are recommended for proper staging. Many guidelines accept 10 as the minimum threshold, though higher counts improve staging accuracy. Hence, this pairing is acceptable. 2. Colon cancer – 12 nodes (B) : In colorectal carcinoma, examination of at least 12 lymph nodes is the established standard for accurate staging. This is a well-recognized benchmark in oncologic pathology. 3. Gall bladder cancer – 6 nodes (C) : For gallbladder carcinoma, evaluation of at least 6 lymph nodes is considered adequate for proper staging. 4. Breast cancer – 15 nodes (D) : There is no fixed requirement of 15 lymph nodes for breast cancer staging. Sentinel lymph node biopsy is often sufficient in early disease, and axillary dissection does not mandate a minimum of 15 nodes. Therefore, the correctly paired options are A, B, and C, making option (B) the correct answer.

Question 108. Which of the following statements is false regarding acute cholecystitis?

A. Gall bladder thickness >4 mm on USG

B. Murphy's sign positive

C. Leukocytosis

D. Gold standard investigation is CT scan

Correct answer: D

Gold standard investigation is CT scan Acute cholecystitis is inflammation of the gallbladder, usually caused by obstruction of the cystic duct by a gallstone. The diagnosis is based on clinical findings and imaging. (A) , (B), and (C) are all key features. The clinical examination reveals a positive Murphy's sign (inspiratory arrest upon palpation of the right upper quadrant). Laboratory tests often show leukocytosis. Abdominal ultrasound (USG) is the initial imaging modality of choice, showing findings like gallstones, a thickened gallbladder wall (>4 mm), pericholecystic fluid, and a sonographic Murphy's sign. (D) This statement is false. The initial and primary imaging investigation for suspected acute cholecystitis is ultrasonography, due to its high sensitivity, specificity, availability, and lack of ionizing radiation. If the ultrasound is equivocal, a HIDA scan (cholescintigraphy) is considered the gold standard or most accurate test, as failure to visualize the gallbladder indicates cystic duct obstruction. A CT scan is useful for identifying complications but is not the gold standard for diagnosis.

Question 109. Which of the following statements correctly describes how central venous access differs from peripheral venous access? 1 Phlebitis is the most common complication in peripheral venous access. 2 Isotonic saline and heparin are flushed to retain patency. 3 If an arteriovenous fistula is present in a limb, avoid peripheral venous access in the same limb. 4 Vasopressors for septic shock are given in the central line to avoid limb ischemia.

A. 1,3,4

B. 2,3,4

C. 1,2,3,4

D. 1,2,3

Correct answer: C

1,2,3,4 All four statements correctly describe important differences and principles related to central versus peripheral venous access. 1 Phlebitis is the most common complication in peripheral venous access : Peripheral IV lines commonly cause thrombophlebitis due to irritation of the vein by the cannula or infused drugs. This is much less common with properly placed central lines. 2 Isotonic saline and heparin are flushed to retain patency : Both central and peripheral lines require flushing to maintain patency. Central venous catheters, especially long-term lines, often require heparinized saline depending on institutional protocol. 3 If an arteriovenous fistula is present in a limb, avoid peripheral venous access in the same limb : This is essential to prevent damage, thrombosis, or infection of the fistula used for hemodialysis. 4 Vasopressors for septic shock are given through a central line : Vasopressors (e.g., norepinephrine) can cause severe tissue necrosis if extravasation occurs. Therefore, central venous access is preferred to avoid limb ischemia. Thus, all statements are correct, making option (C) the right answer.

Question 110. Which of the following is NOT a relative contraindication for breast-conserving surgery?

A. Macromastia

B. Extensive Tumor in medial regions

C. Prior chest irradiation

D. Tobacco addiction

Correct answer: D

Tobacco addiction Breast-conserving surgery (BCS), or lumpectomy, followed by radiation therapy is an alternative to mastectomy. There are several contraindications. Prior chest irradiation (C) is an absolute contraindication because the breast tissue cannot be safely re-irradiated. Extensive tumor or multicentric disease, where a good cosmetic outcome cannot be achieved, is a relative contraindication (B). Tumors in medial regions can be technically challenging for radiation planning. Macromastia (A) (very large breasts) can also be a relative contraindication as it can make it difficult to achieve a good cosmetic result and deliver a uniform radiation dose. Tobacco addiction (D), while a risk factor for poor wound healing and other surgical complications, is not considered a specific contraindication to BCS itself. It is a general surgical risk factor that needs to be managed, but it doesn't preclude the patient from being a candidate for breast conservation.

Question 111. A 50-year-old chronic alcoholic presents with recurrent jaundice for the past two months. CT imaging shows dilatation of both the common bile duct and the pancreatic duct. What is the most probable diagnosis?

A. Cholangiocarcinoma

B. Periampullary carcinoma

C. Common bile duct stone

D. Head of the pancreas carcinoma

Correct answer: B

Periampullary carcinoma Dilatation of both the common bile duct and the pancreatic duct on imaging is known as the “double duct sign.” This finding strongly suggests obstruction at or near the ampulla of Vater. The most common cause of this presentation is Periampullary carcinoma. Why periampullary carcinoma? 1 Located near the ampulla where both ducts open into the duodenum. 2 Causes obstruction of: Common bile duct → Jaundice Pancreatic duct → Pancreatic duct dilatation. 3 Produces recurrent or progressive obstructive jaundice. Why other options are less likely? 1. Cholangiocarcinoma – Usually causes bile duct dilatation but not typically pancreatic duct dilatation unless distal. 2. Common bile duct stone – May dilate CBD, but pancreatic duct dilatation is less common and symptoms are often acute. 3. Carcinoma head of pancreas – Also causes double duct sign, but periampullary tumors more classically present with earlier jaundice and better prognosis. Thus, the most probable diagnosis is Periampullary carcinoma.

Question 112. 151. In a patient with grade 3 splenic injury who is undergoing conservative management in the ICU, which finding on the second day would indicate the need for surgical intervention?

A. Hemoglobin fall from 12mg/dL to 10mg/dL

B. Extraperitoneal bladder rupture

C. Pneumoperitoneum

D. Air in gallbladder

Correct answer: C

Pneumoperitoneum Non-operative management (NOM) is the standard of care for hemodynamically stable patients with blunt solid organ injuries, such as a grade 3 splenic trauma. This approach involves intensive monitoring for signs of failure, which would necessitate a shift to surgical intervention. While a significant drop in hemoglobin requiring multiple transfusions can indicate failure of NOM, the finding of pneumoperitoneum (free air in the peritoneal cavity) on imaging is an absolute indication for an immediate exploratory laparotomy. Pneumoperitoneum is a cardinal sign of a perforated hollow viscus (e.g., stomach, bowel). Its presence indicates a missed intra-abdominal injury that is a surgical emergency, independent of the splenic injury's status. Continuing with NOM in the presence of a bowel perforation would lead to life-threatening peritonitis and sepsis. Therefore, the discovery of pneumoperitoneum mandates an urgent surgical exploration. PEDIATRICS

Question 113. Which of the following signs is the most dependable indicator that

ventilation is effective during neonatal resuscitation?

A. Colour change

B. Rise in heart rate

C. Air entry

D. Chest rise

Correct answer: B

Rise in heart rate According to the Neonatal Resuscitation Program (NRP) guidelines, the single most important and reliable indicator that positive pressure ventilation (PPV) is effectively oxygenating the baby's vital organs is a prompt rise in the heart rate. When a newborn is apneic or bradycardic, the initial and most critical intervention is effective ventilation. While observing visible chest rise is essential to confirm that air is entering the lungs, it is the subsequent physiological response of the heart that confirms the effectiveness of this ventilation. A rapid increase in the heart rate to above 100 beats per minute signifies that the lungs are being adequately ventilated, oxygen is being absorbed into the blood, and perfusion to the myocardium is improving. If the heart rate does not increase within 30 seconds despite adequate chest rise, the ventilation technique should be re-assessed using corrective steps before moving on to chest compressions.

Question 114. What is the most probable diagnosis in a 10-year- old boy who presents with fatigue, laboratory results showing hemoglobin of 9 g/dL, MCV 60 fL, MCH 20 pg, and a serum ferritin level of 185 µg/L, along with an elevated total leukocyte count featuring increased lymphocytes and neutrophils?

A. Thalassemia

B. Anemia of chronic disorder

C. Iron-deficiency anemia

D. Sickle cell anemia

Correct answer: B

Anemia of chronic disorder The patient's laboratory results indicate a microcytic (low MCV) and hypochromic (low MCH) anemia. The main differential diagnoses for this type of anemia are iron deficiency anemia (IDA) and thalassemia. However, the serum ferritin level, which reflects the body's iron stores, is the key to differentiating these conditions. In IDA, the serum ferritin level would be significantly decreased. In this case, the ferritin is normal or even elevated (185 µg/L). The combination of a microcytic/hypochromic anemia with a normal or high ferritin level, especially in the presence of an elevated white blood cell count (leukocytosis) suggesting an underlying inflammatory process, is the classic biochemical profile of Anemia of Chronic Disorder (ACD), also known as anemia of inflammation. In ACD, chronic inflammation leads to increased hepcidin levels, which traps iron within macrophages, resulting in iron-restricted erythropoiesis despite adequate or elevated body stores.

Question 115. Which antibiotic should be given empirically to a child who develops fever, rash, body aches, and a sore throat one week after sustaining a thorn-prick injury?

A. Ceftriaxone

B. Amoxicillin + clavulanate

C. Vancomycin

D. Meropenem

Correct answer: B

Amoxicillin + clavulanate A thorn-prick injury commonly introduces skin flora and environmental organisms, particularly Staphylococcus aureus and Streptococcus species. One week later, the child develops fever, rash, body aches, and sore throat—suggesting a likely soft tissue infection with possible systemic involvement, most commonly due to gram-positive organisms. For empirical outpatient coverage of post-traumatic soft tissue infections, amoxicillin + clavulanate is appropriate because: 1. It covers Streptococcus species 2. It covers methicillin-sensitive Staphylococcus aureus (MSSA) 3. It provides additional coverage against some gram-negative and anaerobic organisms introduced from plant material Ceftriaxone and meropenem are broader-spectrum intravenous antibiotics reserved for more severe infections. Vancomycin is mainly used for suspected MRSA or severe gram-positive infections. Thus, the most appropriate empirical antibiotic in this scenario is amoxicillin + clavulanate.

Question 116. What is the most frequent pattern of involvement observed in Pott's spine?

A. Paradiscal

B. Central

C. Anterior

D. Posterior

Correct answer: A

Paradiscal Pott's spine, or tuberculous spondylitis, is a form of extrapulmonary tuberculosis that affects the spine. The infection typically begins in the anterior part of the vertebral body, near the subchondral bone plate. The most common pattern of involvement is paradiscal. In this pattern, the infection starts in the vertebral body adjacent to the intervertebral disc. It then spreads across the disc space to involve the adjacent vertebral body. This destruction of the two contiguous vertebrae and the intervening disc is the classic radiological and pathological feature of Pott's spine. The central type (B), where the infection is contained within the center of the vertebral body, and the anterior type (C), where it is confined to the anterior surface under the ligament, are less common patterns. The posterior elements are rarely the primary site of infection.

Question 117. What is the combination of deformities seen in Congenital Talipes

Equinovarus (CTEV), also known as clubfoot?

A. Equinus, eversion, forefoot adduction, cavus

B. Equinus, inversion, forefoot adduction, cavus

C. Equinus, eversion, forefoot abduction, cavus

D. Equinus, inversion, forefoot adduction, planus

Correct answer: B

Equinus, inversion, forefoot adduction, cavus Congenital Talipes Equinovarus (CTEV), or clubfoot, is a complex congenital deformity of the foot involving multiple joints and soft tissues. The name itself describes the components of the deformity. The acronym CAVE is often used to remember the four distinct components : 1. Cavus : An exaggerated high arch of the foot, caused by flexion of the forefoot on the hindfoot. 2. Adductus : The forefoot is deviated medially (adduction) at the midtarsal joint. 3. Varus : The heel is turned inward (inversion) at the subtalar joint. This is often referred to instead of inversion, though the motion is the same. 4. Equinus : The entire foot is plantarflexed at the ankle joint, pointing downwards like a horse's hoof. Therefore, the correct combination of deformities is equinus, inversion (varus), forefoot adduction, and cavus.

Question 118. The Book test is used to assess the function of the adductor pollicis. Which of the following nerves supplies this muscle?

A. Posterior interosseous nerve

B. Ulnar nerve

C. Radial nerve

D. Median nerve

Correct answer: B

Ulnar nerve The Book test, also known as Froment's sign, is a clinical test used to assess the strength of the adductor pollicis muscle. This muscle is responsible for the powerful adduction of the thumb, such as when pinching a key or holding a piece of paper. The adductor pollicis, along with most of the intrinsic muscles of the hand (the interossei, hypothenar muscles, and medial two lumbricals), is innervated by the deep motor branch of the ulnar nerve. Therefore, weakness in this test, where the patient flexes the interphalangeal joint of the thumb (using the median nerve-innervated flexor pollicis longus) to compensate for the weak adductor, is a classic sign of an ulnar nerve palsy. The median nerve (D) innervates the thenar eminence muscles, while the radial nerve (C) innervates the extensors. OBS & GYNE

Question 119. Arrange the following cells in the order they are found from the basal layer to the lumen within the seminiferous tubules : 1 Spermatogonia 2 Primary spermatocyte 3 Spermatid 4 Spermatozoa 5 Myoepithelial cell

A. 1,5,4,2,3

B. 1,2,3,4,5

C. 5,4,3,2,1

D. 5,1,2,3,4

Correct answer: D

5,1,2,3,4 The process of spermatogenesis occurs within the seminiferous tubules of the testes, with cells arranged in a highly organized fashion from the periphery towards the lumen. The outermost layer of the tubule is the basement membrane, which is surrounded by contractile peritubular myoid cells (often called myoepithelial cells in this context). Immediately inside the basement membrane, in the basal compartment, are the most immature germ cells, the spermatogonia. As these cells divide and differentiate, they move towards the adluminal compartment. Spermatogonia develop into primary spermatocytes, which undergo meiosis I to become secondary spermatocytes. These then undergo meiosis II to become spermatids. Finally, through the process of spermiogenesis, the round spermatids mature and elongate to form spermatozoa, which are then released into the lumen of the tubule. Therefore, the correct sequence from the outermost layer to the lumen is Myoid cell → Spermatogonia → Primary spermatocyte → Spermatid → Spermatozoa.

Question 120. What is the appropriate management for a woman who is 12 weeks pregnant and receiving multidrug therapy for leprosy, if she develops a type 2 lepra reaction?

A. Stop MDT and start oral steroids

B. Thalidomide

C. Continue MDT and add oral steroids

D. None of the above

Correct answer: C

Continue MDT and add oral steroids A Type 2 lepra reaction, also known as Erythema Nodosum Leprosum (ENL), is a systemic, immune complex-mediated inflammatory complication that can occur during the treatment of multibacillary leprosy. The management of a lepra reaction is considered a medical emergency, but it is crucial to continue the standard multidrug therapy (MDT) for leprosy without interruption to continue killing the bacilli. The inflammation of the reaction itself is managed concurrently. The first-line treatment for a severe Type 2 reaction is a course of systemic corticosteroids, such as oral prednisolone. Thalidomide (B) is also highly effective for ENL but is a potent teratogen and is absolutely contraindicated during pregnancy. Therefore, the correct approach for a pregnant patient experiencing a Type 2 reaction is to continue her essential MDT regimen and add a course of oral steroids to control the inflammation.

Question 121. Which of the statements below is not accurate regarding lupus nephritis during pregnancy?

A. Immunosuppression can be continued during pregnancy

B. Ecosprin, methotrexate, cyclophosphamide, corticosteroids, azathioprine are safe in pregnancy

C. Pregnancy to be planned once the disease has been quiescent for at least 6 months and there is no evidence of renal dysfunction

D. High dose corticosteroids for lupus flare in pregnancy is safe

Correct answer: B

Ecosprin, methotrexate, cyclophosphamide, corticosteroids, azathioprine are safe in pregnancy Managing systemic lupus erythematosus (SLE) and lupus nephritis during pregnancy requires careful planning and medication selection. It is highly recommended that pregnancy should be planned during a period of disease quiescence, ideally for at least six months, to minimize the risk of flares and adverse outcomes (C). Many immunosuppressive drugs can be safely continued during pregnancy to maintain remission, including hydroxychloroquine, azathioprine, and corticosteroids (A, D). However, several immunosuppressants are potent teratogens and are absolutely contraindicated. This statement incorrectly lumps safe and unsafe drugs together. While Ecosprin (low-dose aspirin), corticosteroids, and azathioprine are generally considered safe and are commonly used, methotrexate and cyclophosphamide are both powerful teratogens that are strictly contraindicated during pregnancy due to their high risk of causing severe congenital malformations. This makes the entire statement inaccurate.

Question 122. Which of the statements below is not true regarding the management of diabetes during pregnancy?

A. Insulin must be recommended in case of small for gestational age infant

B. In a patient being planned for induction of labor, the night dose of intermediate insulin is given as planned, and the morning dose is withheld

C. In active labor, if RBS <70 mg%, D5 is started at 100-150 ml/hr till the RBS is >100 mg%

D. Capillary blood glucose monitoring levels are kept at fasting- 95 mg%; 1 hr postprandial- 140 mg%; 2 hrs postprandial- 120 mg%

Correct answer: A

Insulin must be recommended in case of small for gestational age infant The management of diabetes during pregnancy aims for tight glycemic control to prevent maternal and fetal complications. The target capillary blood glucose levels are typically fasting <95 mg/dL, 1-hour postprandial <140 mg/dL, and 2-hour postprandial <120 mg/dL, making statement D correct. During labor and delivery, careful glucose monitoring is essential, and protocols for managing hypoglycemia with dextrose infusions (C) and adjusting insulin doses for planned inductions (B) are standard practice. However, the primary fetal complication of maternal hyperglycemia is fetal macrosomia (large for gestational age), not being small for gestational age (SGA). An SGA infant in a diabetic mother is more likely to be a sign of underlying uteroplacental insufficiency (often from vascular complications of long-standing diabetes) rather than an indication for

initiating or intensifying insulin therapy. Therefore, the statement that insulin is specifically recommended because an infant is SGA is not true.

Question 123. Which of the following tests is not routinely advised for screening pregnant women because it is not cost-effective?

A. Echo cardiography for cardiac disease

B. Urine analysis for bacteriuria

C. Blood sugar levels for GDM

D. VDRL for syphilis

Correct answer: A

Echocardiography for cardiac disease Routine antenatal screening involves a series of tests offered to all pregnant women to identify potential health problems. Universal screening is recommended for conditions where early detection and treatment can significantly improve maternal or fetal outcomes. This includes screening for asymptomatic bacteriuria with a urine analysis or culture, screening for Gestational Diabetes Mellitus (GDM) with a blood sugar test, and screening for syphilis with a VDRL or RPR test. These are all considered highly cost-effective public health interventions. In contrast, while cardiovascular disease is a leading cause of maternal mortality, a routine screening echocardiogram for all pregnant women is not recommended. Echocardiography is a specialized and relatively expensive test that is reserved for women with specific risk factors, symptoms, or abnormal findings on physical examination, not for universal screening.

Question 124. In which condition are the seminal vesicles and vas deferens congenitally absent on both sides?

A. Klinefelter syndrome

B. Kallmann syndrome

C. Cystic fibrosis

D. Kartagener syndrome

Correct answer: C

Cystic fibrosis Congenital bilateral absence of the vas deferens (CBAVD) is a specific congenital anomaly that is a major cause of obstructive azoospermia and male infertility. While it can occur as an isolated finding, CBAVD is very strongly associated with mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene, the same gene that causes cystic fibrosis. In fact, CBAVD is considered to be part of the CF spectrum, and over 95% of men with classic cystic fibrosis have CBAVD. Many men who present with isolated CBAVD are found to carry two CFTR mutations. The Wolffian ducts, which develop into the vas deferens, seminal vesicles, and epididymis, are sensitive to the ion transport regulated by CFTR, and its dysfunction leads to their failed development or atrophy. The other syndromes listed are associated with different forms of infertility (e.g., hypergonadotropic or hypogonadotropic

hypogonadism).

Question 125. Kassowitz rule is related to :

A. Primary syphilis

B. Congenital syphilis

C. Secondary syphilis

D. Latent syphilis

Correct answer: B

Congenital syphilis Kassowitz's Law is an old clinical observation related to the transmission and severity of congenital syphilis. The law states that the risk of transmission of syphilis from an untreated mother to her fetus, and the severity of the resulting congenital infection, are highest when the maternal infection is recent and decrease with the duration of the maternal infection. In other words, a mother who acquires primary or secondary syphilis just before or during pregnancy is much more likely to have a severely affected infant (e.g., stillbirth or early congenital syphilis) than a mother who has had untreated latent syphilis for many years. While not an absolute rule, it reflects the principle that the spirochetemia is highest during the early stages of syphilis, leading to a greater likelihood of placental invasion and fetal infection.

Question 126. What is the hormone secreted by the placenta?

A. FSH

B. LH

C. GnRH

D. hCG

Correct answer: D

hCG The placenta is a temporary but highly active endocrine organ that secretes numerous hormones essential for maintaining pregnancy. The most well-known and earliest hormone produced by the placenta is human chorionic gonadotropin (hCG). hCG is a glycoprotein hormone that is secreted by the syncytiotrophoblast cells of the developing placenta shortly after implantation. Its primary function in early pregnancy is to "rescue" and maintain the function of the corpus luteum in the ovary, ensuring the continued secretion of progesterone, which is critical for sustaining the endometrial lining and preventing menstruation. The detection of hCG in the mother's urine or blood is the basis for all standard pregnancy tests. Follicle-stimulating hormone (FSH), luteinizing hormone (LH), and gonadotropin-releasing hormone (GnRH) are primarily produced by the pituitary and hypothalamus and regulate the normal menstrual cycle.

Question 127. A 37-year-old unmarried, nulliparous woman who is sexually active and takes oral contraceptives has a family history of breast cancer in her mother at age 60 and ovarian cancer in her sister at age 40. What is the most appropriate next

step in her management?

A. Routine mammography

B. Stop taking oral contraceptive pills

C. Genetic counseling and screening for BRCA

D. Prophylactic surgery

Correct answer: C

Genetic counseling and screening for BRCA This patient's family history is highly significant and concerning for a hereditary cancer syndrome. The combination of a first-degree relative (sister) with ovarian cancer diagnosed at a young age (40) and another first-degree relative (mother) with breast cancer strongly suggests the possibility of a germline mutation in the BRCA1 or BRCA2 genes. These mutations are associated with Hereditary Breast and Ovarian Cancer (HBOC) syndrome, which confers a very high lifetime risk for these and other cancers. Therefore, the most appropriate and crucial next step in her management is referral for genetic counseling to fully assess her risk, followed by consideration of genetic testing for BRCA mutations. The results of this testing will determine her personal cancer risk and guide subsequent management, which may include enhanced surveillance (e.g., earlier and more frequent mammograms and breast MRIs) and consideration of risk-reducing prophylactic surgery.

Question 128. Which of the following statements regarding a normal placenta is incorrect?

A. Placenta weight at term is 470 g

B. Round-oval with 22 cm diameter

C. Extraplacental membranes and 2-vessel umbilical cord present [75%]

D. Central thickness >2.5 cm

Correct answer: C

Extraplacental membranes and 2-vessel umbilical cord present [75%] A normal term placenta has well-defined characteristics. It typically weighs approximately 470-500 grams, which is about one-sixth of the fetal weight (A). It is usually a round to oval disc with a diameter of about 22 cm and a central thickness of 2.5 cm (B, D). The umbilical cord normally contains three vessels : two umbilical arteries and one umbilical vein. The presence of a two-vessel cord (a single umbilical artery) is an anomaly, occurring in less than 1% of pregnancies, and it can be associated with other congenital malformations. The statement that a two-vessel cord is present in 75% of cases is incorrect. Furthermore, "extraplacental membranes" is a vague term, but abnormalities like succenturiate lobes or velamentous cord insertions are deviations from the normal structure.

Question 129. Which of the following is not a suitable option for first-trimester medical termination of pregnancy (MTP)?

A. Mifepristone + misoprostol

B. Manual vacuum aspiration

C. Dilatation and curettage

D. Extra-amniotic instillation of ethacridine lactate

Correct answer: D

Extra-amniotic instillation of ethacridine lactate The methods used for termination of pregnancy vary depending on the gestational age. In the first trimester (up to 12-14 weeks), the recommended and safest options are either a medical regimen or a minor surgical procedure. The standard medical regimen is a combination of mifepristone followed by misoprostol. The standard surgical procedures are manual vacuum aspiration (MVA) or electrical vacuum aspiration (EVA). A sharp dilatation and curettage (D&C) is an older surgical technique that has largely been replaced by vacuum aspiration due to a higher risk of complications. In contrast, the extra-amniotic instillation of agents like ethacridine lactate or prostaglandins is a method used to induce labor for second-trimester pregnancy terminations. This procedure is not suitable or used for terminations in the first trimester.

Question 130. What is the initial indication of magnesium sulfate toxicity in a woman undergoing treatment for eclampsia?

A. Loss of knee jerk

B. Hypotension

C. Respiratory depression

D. Reduced muscle tone

Correct answer: A

Loss of knee jerk Magnesium sulfate is the drug of choice for seizure prophylaxis and treatment in patients with severe preeclampsia and eclampsia. It has a narrow therapeutic index, so patients receiving it must be closely monitored for signs of toxicity. The therapeutic range for seizure prevention is typically 4-7 mEq/L. The earliest and most reliable clinical sign of impending magnesium toxicity occurs as serum levels rise above the therapeutic range. At levels of approximately 7-10 mEq/L, magnesium sulfate causes depression of the deep tendon reflexes. Therefore, the loss of the patellar reflex (knee jerk) is the first clinical sign that a patient is developing toxic levels of magnesium. If the levels continue to rise, respiratory depression (C) occurs at around 10-12 mEq/L, followed by cardiac arrest at much higher levels. Regular assessment of the patellar reflex is a critical nursing and medical responsibility during magnesium sulfate infusion.

Question 131. What is the distribution of age groups affected by vulval cancer?

A. Not age specific

B. 35-55 years

C. 55-85 years

D. Both of the above

Correct answer: C

55-85 years Vulvar cancer is a relatively rare gynecological malignancy that predominantly affects older, postmenopausal women. The incidence of vulvar cancer increases significantly with age. There are two main etiological pathways. The first is related to chronic infection with high-risk human papillomavirus (HPV), which typically occurs in younger women. The second, and more common, pathway is HPV-independent and is associated with chronic inflammatory skin conditions of the vulva, such as lichen sclerosus. This second type accounts for the majority of cases and is responsible for the peak incidence of the disease in the postmenopausal period. The median age at diagnosis for vulvar cancer is approximately 68-70 years, with the majority of cases occurring in women between the ages of 55 and 85 years. It is uncommon in women under the age of 50. DERMATOLOGY

Question 132. What is the presentation of a rash that is characterized by vesicles?

A. Kyasanur forest disease

B. Dengue

C. Zika fever

D. Roseola infantum

Correct answer: C

Zika fever A vesicular rash is characterized by small, fluid-filled blisters on the skin. Zika fever typically presents with a maculopapular rash, but vesicular lesions may occasionally be seen, especially in pediatric cases. The rash is usually pruritic and accompanied by low-grade fever, conjunctivitis, arthralgia, and myalgia. The cutaneous eruption often starts on the face and spreads to the trunk and extremities. In contrast: 1. Kyasanur Forest Disease (A) usually presents with hemorrhagic manifestations rather than vesicular rash. 2. Dengue (B) classically causes a maculopapular or petechial rash, not vesicles. 3. Roseola infantum (D) presents with a rose-pink maculopapular rash appearing after high fever subsides, not vesicular lesions. Therefore, among the given options, Zika fever is most closely associated with a rash that may show vesicular characteristics.

Question 133. Please match the following types of scales with their corresponding lesions : 1. Collarette scales a. Pityriasis versico- lour 2. Silvery scales b. Pityriasis rosea 3. Mica-like scales c. Psoriasis 4. Branny scales d. Pityriasis lichenoi- des

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

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

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

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

Correct answer: A

1-b, 2-c, 3-d, 4-a The morphology of the scale is an important diagnostic clue in dermatology. 1.

Collarette scale refers to a thin ring of scale that is attached at the periphery and free in the center. This is a classic feature of the oval lesions seen in pityriasis rosea (1-b). 2. Silvery scales are thick, white, and lamellar scales that are easily detached, revealing pinpoint bleeding points underneath (Auspitz sign). This is the hallmark of chronic plaque psoriasis (2-c). 3. Mica-like scales are adherent scales that can be peeled off in layers, resembling the mineral mica. This distinctive feature is characteristic of pityriasis lichenoides chronica (3-d). 4. Branny scales are fine, dust-like scales, similar in appearance to bran. This type of scaling is typically seen in pityriasis versicolor, a superficial fungal infection (4-a).

Question 134. Which of the following factors is responsible for non-scarring alopecia in patients? 1 Alopecia areata 2 Telogen effluvium 3 Androgenic alopecia 4 Frontal fibrosing alopecia

A. 3 and 4

B. 1, 2 and 3

C. 2,3 and 4

D. Only 4

Correct answer: B

1, 2 and 3 Alopecias are classified into two major groups : non-scarring (non-cicatricial) and scarring (cicatricial). In non-scarring alopecias, the underlying hair follicle structure remains intact, meaning there is potential for hair regrowth. This is the more common category and includes : Alopecia areata, an autoimmune condition causing patchy hair loss. Telogen effluvium, a diffuse shedding of resting hairs after a physiological stressor. Androgenic alopecia, the common male and female pattern hair loss. In contrast, scarring alopecias involve inflammation-mediated destruction of the hair follicle stem cells, leading to irreversible hair loss and replacement by fibrous scar tissue. Frontal fibrosing alopecia is a primary scarring alopecia, considered a clinical variant of lichen planopilaris. Therefore, the first three options are all types of non-scarring alopecia. page 465 INICET Examination Paper

Question 135. What criteria must be met before starting multidrug therapy (MDT) for leprosy? 1 Hypopigmented patch with sensory loss 2 Peripheral nerve thickening 3 Peripheral nerve thickening with sensory loss 4 Skin biopsy demonstrating bacilli

A. 1,4

B. 1,3

C. 1,3,4

D. 1, 2, 3, 4

Correct answer: B

1,3 Before initiating multidrug therapy (MDT) for leprosy, the diagnosis is made clinically based on the presence of at least one of the cardinal signs of leprosy as per WHO guidelines. The three cardinal signs are: 1 Hypopigmented or erythematous skin lesion with definite sensory

loss 2 Thickened peripheral nerve with sensory and/or motor impairment 3 Demonstration of acid-fast bacilli in a slit-skin smear Statement 1 is correct because a hypopigmented patch with definite sensory loss is a cardinal sign. Statement 3 is correct because nerve thickening must be accompanied by sensory or motor deficit to be diagnostic. Statement 2 (nerve thickening alone) is insufficient unless associated with functional impairment. Statement 4 (skin biopsy demonstrating bacilli) is not mandatory before starting MDT; treatment is usually initiated on clinical grounds without waiting for biopsy confirmation. Thus, MDT can be started when criteria 1 and 3 are met, making option (B) correct. ANAESTHESIA

Question 136. Which of the following is the most potent local anesthetic agent?

A. Halothane

B. Isoflurane

C. Lidocaine

D. Bupivacaine

Correct answer: D

Bupivacaine Potency of a local anesthetic refers to the minimum concentration of the drug required to produce nerve blockade. It is directly correlated with the lipid solubility of the agent; a more lipid-soluble drug can more easily penetrate the lipid-rich nerve membrane to reach its site of action on the sodium channels. Bupivacaine is a highly lipid-soluble, long-acting amide local anesthetic. It is significantly more potent than lidocaine, which is considered the reference standard. For example, bupivacaine is effective at concentrations of 0.25-0.5%, whereas lidocaine is typically used in concentrations of 1-2%. Therefore, a much lower concentration of bupivacaine is needed to achieve the same degree of nerve block, making it the most potent among the local anesthetics listed. Halothane and isoflurane are volatile inhalational general anesthetics, not local anesthetics.

Question 137. Post-dural puncture headache usually presents within :

A. 0-6 Hrs

B. 6-12 Hrs

C. 12-72 Hrs

D. 72-96 Hrs

Correct answer: C

12-72 Hrs A post-dural puncture headache (PDPH) is a well-known complication of neuraxial anesthesia (spinal or epidural) or a diagnostic lumbar puncture. It is caused by the persistent leakage of cerebrospinal fluid (CSF) through the hole made in the dura mater, which leads to a decrease in CSF volume and pressure, causing downward traction on pain-sensitive intracranial structures. The headache is characteristically postural, meaning it is severe when the patient is in an upright position (sitting or standing) and is relieved by lying flat. The onset of a PDPH is typically not immediate. Symptoms usually begin 12 to 72 hours after the dural puncture has

occurred, with the most common onset being within the first 48 hours. An immediate headache is more likely related to other causes.

Question 138. During squint surgery, the anesthesiologist notices a sudden drop in blood pressure to 40 mmHg. What should be the most appropriate immediate response?

A. Give atropine

B. Increase level of anesthesia

C. Ask the surgeon to stop the surgery

D. Give adrenaline

Correct answer: C

Ask the surgeon to stop the surgery During squint (strabismus) surgery, traction on the extraocular muscles—especially the medial rectus—can trigger the oculocardiac reflex (OCR). This reflex is mediated by the trigeminal nerve (afferent limb) and the vagus nerve (efferent limb), leading to sudden bradycardia, hypotension, arrhythmias, or even asystole. 1. A sudden drop in blood pressure to 40 mmHg strongly suggests a severe vagal response due to this reflex. 2. The first and most important immediate step is to ask the surgeon to stop traction on the muscle, thereby removing the triggering stimulus. Often, this alone leads to rapid recovery of heart rate and blood pressure. 3. If bradycardia or hypotension persists after stopping stimulation, atropine may then be administered. Increasing anesthesia is not the first response, and adrenaline is reserved for refractory severe cases. Thus, the most appropriate immediate action is to stop the surgical stimulus, making option (C) correct. RADIOLOGY

Question 139. What typical features are seen on a high- resolution CT scan that help in diagnosing fungal pneumonia? 1 Interlobular septations 2 Peripheral wedge-shaped consolidation 3 Pleural effusion 4 Cavitary lesions with surrounding ground glass opacities

A. 1,2,4

B. 1,3,4

C. 1,2,3,4

D. 2,3,4

Correct answer: A

1,2,4 Invasive fungal pneumonia, particularly invasive aspergillosis in immunocompromised patients, has several characteristic findings on high-resolution CT (HRCT). One of the earliest and most specific signs is the presence of one or more nodules or consolidations surrounded by a halo of ground-glass opacity (the "halo sign"), which represents hemorrhage around the angioinvasive fungal focus (4). As the disease progresses and the central part of the lesion becomes necrotic, a cavitary lesion may form, sometimes with an internal air crescent (4). These lesions are often located in the periphery of the lung and can be wedge-shaped,

reflecting their vascular basis (2). Thickening of the interlobular septa (1) can also be seen. While a reactive pleural effusion (3) can occur, it is a non-specific finding and less characteristic than the parenchymal signs of angioinvasion and necrosis.

Question 140. What is the likely diagnosis in a child with growth retardation, joint swelling, wrist X-ray abnormalities, and laboratory findings showing markedly elevated serum ALP levels (>1500)? NODIA page 463 INICET Examination Paper 166. Which of the statements below is not accurate regarding lupus nephritis during pregnancy?

A. Immunosuppression can be continued during pregnancy

B. Ecosprin, methotrexate, cyclophosphamide, corticosteroids, azathioprine are safe in pregnancy

C. Pregnancy to be planned once the disease has been quiescent for at least 6 months and there is no evidence of renal dysfunction

D. High dose corticosteroids for lupus flare in pregnancy is safe

Correct answer: B

Ecosprin, methotrexate, cyclophosphamide, corticosteroids, azathioprine are safe in pregnancy Managing systemic lupus erythematosus (SLE) and lupus nephritis during pregnancy requires careful planning and medication selection. It is highly recommended that pregnancy should be planned during a period of disease quiescence, ideally for at least six months, to minimize the risk of flares and adverse outcomes (C). Many immunosuppressive drugs can be safely continued during pregnancy to maintain remission, including hydroxychloroquine, azathioprine, and corticosteroids (A, D). However, several immunosuppressants are potent teratogens and are absolutely contraindicated. This statement incorrectly lumps safe and unsafe drugs together. While Ecosprin (low-dose aspirin), corticosteroids, and azathioprine are generally considered safe and are commonly used, methotrexate and cyclophosphamide are both powerful teratogens that are strictly contraindicated during pregnancy due to their high risk of causing severe congenital malformations. This makes the entire statement inaccurate. 167. Which of the statements below is not true regarding the management of diabetes during pregnancy? (A) Insulin must be recommended in case of small for gestational age infant (B) In a patient being planned for induction of labor, the night dose of intermediate insulin is given as planned, and the morning dose is withheld (C) In active labor, if RBS <70 mg%, D5 is started at 100-150 ml/hr till the RBS is >100 mg% (D) Capillary blood glucose monitoring levels are kept at fasting- 95 mg%; 1 hr postprandial- 140 mg%; 2 hrs postprandial- 120 mg% AAns (A) Insulin must be recommended in case of small for gestational age infant The management of diabetes during pregnancy aims for tight glycemic control to prevent maternal and fetal complications. The target capillary blood glucose levels are typically fasting <95 mg/dL, 1-hour postprandial <140 mg/dL, and 2-hour postprandial <120 mg/dL, making statement D correct. During labor

and delivery, careful glucose monitoring is essential, and protocols for managing hypoglycemia with dextrose infusions (C) and adjusting insulin doses for planned inductions (B) are standard practice. However, the primary fetal complication of maternal hyperglycemia is fetal macrosomia (large for gestational age), not being small for gestational age (SGA). An SGA infant in a diabetic mother is more likely to be a sign of underlying uteroplacental insufficiency (often from vascular complications of long-standing diabetes) rather than an indication for initiating or intensifying insulin therapy. Therefore, the statement that insulin is specifically recommended because an infant is SGA is not true. 168. Which of the following tests is not routinely advised for screening pregnant women because it is not cost-effective? (A) Echo cardiography for cardiac disease (B) Urine analysis for bacteriuria (C) Blood sugar levels for GDM (D) VDRL for syphilis AAns (A) Echocardiography for cardiac disease Routine antenatal screening involves a series of tests offered to all pregnant women to identify potential health problems. Universal screening is recommended for conditions where early detection and treatment can significantly improve maternal or fetal outcomes. This includes screening for asymptomatic bacteriuria with a urine analysis or culture, screening for Gestational Diabetes Mellitus (GDM) with a blood sugar test, and screening for syphilis with a VDRL or RPR test. These are all considered highly cost-effective public health interventions. In contrast, while cardiovascular disease is a leading cause of maternal mortality, a routine screening echocardiogram for all pregnant women is not recommended. Echocardiography is a specialized and relatively expensive test that is reserved for women with specific risk factors, symptoms, or abnormal findings on physical examination, not for universal screening. 169. In which condition are the seminal vesicles and vas deferens congenitally absent on both sides? (A) Klinefelter syndrome (B) Kallmann syndrome (C) Cystic fibrosis (D) Kartagener syndrome AAns (C) Cystic fibrosis Congenital bilateral absence of the vas deferens (CBAVD) is a specific congenital anomaly that is a major cause of obstructive azoospermia and male infertility. While it can occur as an isolated finding, CBAVD is very strongly associated with mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene, the same gene that causes cystic fibrosis. In fact, CBAVD is considered to be part of the CF spectrum, and over 95% of men with classic cystic fibrosis have CBAVD. Many men who present with isolated CBAVD are found to carry two CFTR mutations. The Wolffian ducts, which develop into the vas deferens, seminal vesicles, and epididymis, are sensitive to the ion transport regulated by CFTR, and its dysfunction leads to their failed development or atrophy. The other syndromes listed are associated with different forms of infertility (e.g., hypergonadotropic or hypogonadotropic hypogonadism). 170. Kassowitz rule is related to : (A) Primary syphilis (B) Congenital syphilis (C) Secondary syphilis (D) Latent syphilis AAns (B) Congenital syphilis Kassowitz's Law is an old clinical observation related to the transmission and severity of congenital syphilis. The law states that the risk of transmission of syphilis from an untreated mother to her fetus, and the severity of the resulting congenital infection, are highest when the maternal infection is recent

and decrease with the duration of the maternal infection. In other words, a mother who acquires primary or secondary syphilis just before or during pregnancy is much more likely to have a severely affected infant (e.g., stillbirth or early congenital syphilis) than a mother who has had untreated latent syphilis for many years. While not an absolute rule, it reflects the principle that the spirochetemia is highest during the early stages of syphilis, leading to a greater likelihood of placental invasion and fetal infection. 171. What is the hormone secreted by the placenta? (A) FSH (B) LH (C) GnRH (D) hCG AAns (D) hCG The placenta is a temporary but highly active endocrine organ that secretes numerous hormones essential for maintaining pregnancy. The most well-known and earliest hormone produced by the placenta is human chorionic gonadotropin (hCG). hCG is a glycoprotein hormone that is secreted by the syncytiotrophoblast cells of the developing placenta shortly after implantation. Its primary function in early pregnancy is to "rescue" and maintain the function of the corpus luteum in the ovary, ensuring the continued secretion of progesterone, which is critical for sustaining the endometrial lining and preventing menstruation. The detection of hCG in the mother's urine or blood is the basis for all standard pregnancy tests. Follicle-stimulating hormone (FSH), luteinizing hormone (LH), and gonadotropin-releasing hormone (GnRH) are primarily produced by the pituitary and hypothalamus and regulate the normal menstrual cycle. 172. A 37-year-old unmarried, nulliparous woman who is sexually active and takes oral contraceptives has a family history of breast cancer in her mother at age 60 and ovarian cancer in her sister at age 40. What is the most appropriate next step in her management? (A) Routine mammography (B) Stop taking oral contraceptive pills (C) Genetic counseling and screening for BRCA (D) Prophylactic surgery AAns (C) Genetic counseling and screening for BRCA This patient's family history is highly significant and concerning for a hereditary cancer syndrome. The combination of a first-degree relative (sister) with ovarian cancer diagnosed at a young age (40) and another first-degree relative (mother) with breast cancer strongly suggests the possibility of a germline mutation in the BRCA1 or BRCA2 genes. These mutations are associated with Hereditary Breast and Ovarian Cancer (HBOC) syndrome, which confers a very high lifetime risk for these and other cancers. Therefore, the most appropriate and crucial next step in her management is referral for genetic counseling to fully assess her risk, followed by consideration of genetic testing for BRCA mutations. The results of this testing will determine her personal cancer risk and guide subsequent management, which may include enhanced surveillance (e.g., earlier and more frequent mammograms and breast MRIs) and consideration of risk-reducing prophylactic surgery. 173. The given image depicts : (A) Succenturiate lobe (B) Velamentous insertion of the cord (C) Both succenturiate lobe and velamentous insertion (D) Normal placenta AAns (A) Succenturiate lobe The image shows a placenta with a main placental disc and a smaller, separate accessory lobe of placental tissue located at a distance in the membranes. This accessory lobe is known as a succenturiate lobe. These lobes have vascular connections, consisting of fetal arteries and veins, that run through the membranes to connect them to the

main placental body. The clinical significance of a succenturiate lobe is that the lobe itself may be retained in the uterus after delivery, leading to postpartum hemorrhage or infection. Additionally, the connecting blood vessels are unsupported by placental tissue or Wharton's jelly, making them vulnerable to rupture, a condition known as vasa previa, which can be fatal to the fetus. Velamentous insertion refers specifically to the cord inserting into the membranes rather than the placental disc.

Question 141. Which statement is incorrect regarding bipolar disorder?

A. It most commonly affects ages 35-45 years

B. Type 1 is common in both sexes

C. Prevalence in the general population is 1-2%

D. Attempt to commit suicide seen in around 15% of people

Correct answer: A

It most commonly affects ages 35-45 years Bipolar disorder is a serious and chronic mood disorder with a significant impact on individuals and public health. The lifetime prevalence of bipolar I and II disorders in the general population is estimated to be around 1-2% (C). It is associated with a very high risk of suicide; approximately 25-50% of individuals with bipolar disorder will attempt suicide at least once, and the lifetime risk of death by suicide is estimated to be as high as 15-20% (D). Bipolar I disorder affects males and females at roughly equal rates (B). However, the statement regarding the age of onset is incorrect. Bipolar disorder is not a disease of middle age; it typically has an early onset. The mean age of onset is approximately 18-20 years, with most cases presenting in late adolescence or early adulthood. An onset after the age of 40 is uncommon.

Question 142. Match the following : 1. Kleptomania A. Intense desire to drink alcoholic drinks 2. Pyromania B. Intense desire to mu- tilate 3. Mutilomania C. Intense desire to steal items of trivial value 4. Dipsomania D. Intense desire to burn things

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

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

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

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

Correct answer: C

1-C, 2-D, 3-B, 4-A This question requires matching specific impulse control disorders and related terms to their correct definitions. 1. Kleptomania is an impulse control disorder characterized by a recurrent failure to resist the urge to steal items, which are typically not needed for personal use or for their monetary value. The act of stealing provides a sense of pleasure or relief (1-C). 2. Pyromania is an impulse control disorder involving a deliberate and purposeful pattern of fire setting on more than one occasion, driven by a fascination with and attraction to fire (2-D). 3.

Mutilomania is a less common term referring to a pathological impulse to mutilate oneself or others (3-B). 4. Dipsomania is an older term for an uncontrollable craving or compulsion to drink alcoholic beverages (4-A).

Question 143. Which statement correctly reflects the prevalence of the condition in a 14-year-old girl who has experienced sudden blindness for the past 4 hours, shows no distress about her loss of vision, yet regrets not spending more time with her recently deceased mother?

A. In children, equally among males and females

B. In adults, equally among males and females

C. In adults, it occurs more in males than in females

D. In children, it occurs more in females than in males

Correct answer: D

In children, it occurs more in females than in males The patient's presentation is classic for a conversion disorder (functional neurological symptom disorder). This involves a neurological symptom (blindness) that is incongruent with medical findings and is associated with a preceding psychological stressor (the death of her mother). The lack of concern for the symptom is known as "la belle indifférence." Regarding the epidemiology of this condition, it is much more common in females than in males at all ages. This female preponderance is particularly marked in adolescents and young adults. In adults, the female-to-male ratio can be as high as 10 :1. Similarly, in children and adolescents, the disorder is diagnosed significantly more frequently in females than in males. Therefore, the correct statement about the prevalence of conversion disorder is that it occurs more commonly in females, both in childhood and adulthood.

Question 144. A 29-year-old woman with a past history of mania is currently experiencing hypomanic symptoms and is planning a pregnancy. Which medication should be avoided because of its significant risk of fetal malformations?

A. Valproate

B. Lithium

C. Oxcarbazepine

D. Olanzapine

Correct answer: A

Valproate The management of bipolar disorder during pregnancy is complex, requiring a careful balance between controlling maternal mood symptoms and minimizing fetal teratogenic risk. Among the mood stabilizers, valproate (valproic acid) is associated with the highest risk of major congenital malformations. Exposure during the first trimester, particularly between days 17 and 30 of gestation, carries a significant risk (around 10%) of causing neural tube defects, such as spina bifida. It is also associated with an increased risk of cardiac defects, craniofacial

abnormalities, and long-term neurodevelopmental problems, including lower IQ scores and an increased risk of autism spectrum disorder. Because of this high teratogenic potential, valproate is generally contraindicated for use in women of childbearing potential unless other treatments are ineffective. Lithium also carries a risk (Ebstein's anomaly) but it is lower than that of valproate.

Question 145. Select the accurately matched pairs in terms of medications used for treating schizophrenia. 1 D2 antagonism : Reduces positive symptoms 2 5HT2A antagonism : Reduces negative symptoms 3 5HT1A agonism : Weight loss 4 Muscarinic antagonism : Reduces extrapyramidal symptoms

A. 1,3

B. 1,4

C. 1,2,4

D. 1,2,3,4

Correct answer: C

1,2,4 This question examines the pharmacodynamics of antipsychotic drugs. 1 Dopamine D2 receptor antagonism in the mesolimbic pathway is the primary mechanism responsible for the efficacy of all antipsychotic drugs against the positive symptoms of schizophrenia, such as hallucinations and delusions. This is correct. 2 Serotonin 5-HT2A receptor antagonism is a key feature of atypical (second-generation) antipsychotics. This action is thought to increase dopamine release in the prefrontal cortex, which may help to alleviate negative symptoms and cognitive deficits. This is correct. 3 5-HT1A agonism is not associated with weight loss; many antipsychotics cause significant weight gain. This is incorrect. 4 Antipsychotics with high intrinsic muscarinic (anticholinergic) antagonist properties (like clozapine) have a lower liability to cause extrapyramidal symptoms (EPS) compared to drugs with low anticholinergic activity (like haloperidol). Thus, this property helps to reduce the incidence of EPS. This is correct.

Question 146. A person with eonism derives pleasure from which of the following?

A. Wearing clothes of the opposite sex

B. Kissing and licking of anus by a sexual partner

C. Underclothing of female

D. Seeing a female undressing

Correct answer: A

Wearing clothes of the opposite sex Eonism is an older term, named after the 18th-century French diplomat Chevalier d'Éon, that is synonymous with what is now psychiatrically classified as transvestic disorder or transvestism. It is a form of paraphilia defined by recurrent and intense sexual arousal derived from the act of cross-dressing, which is the act of wearing clothes typically associated with the opposite sex. This behavior must cause clinically significant distress or impairment in social, occupational, or other important areas of

functioning for it to be diagnosed as a disorder. It is important to distinguish eonism from gender dysphoria, in which cross-dressing is related to gender identity rather than primarily for sexual arousal. The other options describe different paraphilias or sexual behaviors : anilingus (B), fetishism for underclothing (C), and voyeurism (D). ********** MEDINK