INI-CET May 2023 Question Paper

158 recall questions with answers and explanations.

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

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Question 1. What is the correct order of structures in the auditory pathway?

A. Eight nerve cochlear nuclei superior olivary nucleus lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex

B. Cochlear nuclei superior olivary nucleus → lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex → Eight nerve

C. Superior olivary nucleus lateral lemniscus → inferior colliculus medial geniculate body → auditory cortex → Eight nerve → Cochlear nuclei

D. Superior olivary nucleus inferior colliculus auditory cortex Cochlear nuclei lateral → medial geniculate body → Eight nerve lemniscus

Correct answer: A

Eight nerve cochlear nuclei superior olivary nucleus lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex The central auditory pathway is a complex, polysynaptic route that transmits sound information from the inner ear to the cerebral cortex for conscious perception. The pathway begins with the spiral ganglion neurons, whose axons form the cochlear division of the vestibulocochlear nerve (cranial nerve VIII). These fibers make their first synapse in the cochlear nuclei located in the brainstem. From here, auditory information ascends bilaterally, with a major synapse in the superior olivary nucleus, which is crucial for sound localization. The pathway continues upward through a major ascending tract known as the lateral lemniscus. The next significant relay station is the inferior colliculus in the midbrain, another key auditory processing center. Subsequently, fibers project to the medial geniculate body of the thalamus, the final subcortical relay nucleus. Finally, thalamocortical radiations carry the processed auditory information to the primary auditory cortex located in the temporal lobe.

Question 2. Which nerve provides innervation to the gluteus maximus muscle?

A. Femoral nerve

B. Sciatic nerve

C. Inferior Gluteal Nerve

D. Superior gluteal nerve

Correct answer: C

Inferior Gluteal Nerve The gluteus maximus is the largest and most superficial of the three gluteal muscles, and it serves as the primary extensor of the hip joint. Its motor innervation is provided solely by the inferior gluteal nerve. This nerve arises from the posterior divisions of the ventral rami of the L5, S1, and S2 spinal nerves within the lumbosacral plexus. It exits the pelvis through the greater sciatic foramen, inferior to the piriformis muscle, and travels a short course to innervate the overlying gluteus maximus muscle. It's important to differentiate this from the innervation of the other gluteal muscles; the gluteus medius and minimus, which are responsible for hip abduction and stabilization, are innervated by the superior gluteal nerve. The femoral nerve supplies the anterior thigh muscles, while the sciatic nerve innervates the posterior thigh and the leg and foot, passing deep to the gluteus maximus without supplying it.

Question 3. Match the following: A. Glossopharyngeal nerve 1. Shrugging of shoulder B. Spinal accessory nerve 2. Touch sensation from the poste- rior one-third of the tongue C. Facial nerve 3. Chewing D. Mandibular nerve 4. Taste from the anterior two third of the tongue

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

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

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

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

Correct answer: A

A-2, B-1, C-4, D-3 This question requires matching cranial nerves to their specific functions. 1. The Glossopharyngeal nerve (CN IX) provides general sensory innervation, including touch sensation, from the posterior one-third of the tongue. 2. The Spinal accessory nerve (CN XI) is a motor nerve that supplies the sternocleidomastoid and trapezius muscles. The action of the trapezius in elevating the scapula is tested by asking a patient to shrug their shoulders against resistance. 3. The Facial nerve (CN VII) carries special sensory afferent fibers for taste from the anterior two-thirds of the tongue via its chorda tympani branch. 4. The Mandibular nerve (CN V3), the third division of the trigeminal nerve, provides somatic motor innervation to the muscles of mastication, which are responsible for chewing. Therefore, the correct set of matches is A-2, B-1, C-4, and D-3.

Question 4. Arrange the neural columns in medial-to-lateral order 1. Special somatic afferent 2. Special visceral efferent 3. General somatic efferent 4. General somatic afferent

A. GSE, SVE, GSA, SSA

B. SVE, GSA, SSA, GSE

C. GSA, SSA, GSE, SVE

D. SVE, GSE, GSA, SSA

Correct answer: A

GSE, SVE, GSA, SSA During the development of the brainstem, the cranial nerve nuclei are organized into longitudinal functional columns arranged in a specific medial-to-lateral sequence. The sulcus limitans divides the plate into a medial motor (basal) plate and a lateral sensory (alar) plate. The motor columns are thus medial to the sensory columns. Within the motor plate, the most medial column is the General Somatic Efferent (GSE), innervating skeletal muscles derived from somites. Lateral to it is the Special Visceral Efferent (SVE) column, supplying muscles from the pharyngeal arches. In the sensory plate, the General Somatic Afferent (GSA) column is medial to the Special Somatic Afferent (SSA) column, which is the most lateral of all the columns. Therefore, the correct medial-to-lateral arrangement of the specified columns is GSE, SVE, GSA, and SSA. PHYSIOLOGY

Question 5. What is the main factor responsible for causing acceleration in the fetal heart rate?

A. Carotid baroreceptor

B. Aortic baroreceptor

C. A2-B1-C4-D3

D. A4-B1-C3-D2

Correct answer: C

A2-B1-C4-D3 This question requires matching specific reporting guidelines with the type of study design for which they were developed. These guidelines are essential for ensuring the transparent and complete reporting of research. 1. CARE (CAse REport) guidelines are specifically designed to provide a framework for publishing accurate and transparent case reports (a -> 2). 2. CONSORT (CONsolidated Standards of Reporting Trials) is a widely adopted, evidence-based guideline for reporting Randomized Controlled Trials (RCTs) (b -> 1). 3. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) provides a checklist and flow diagram for reporting Systematic Reviews and meta-analyses (c -> 4). 4. STROBE (STrengthening the Reporting of OBservational studies in Epidemiology) and MOOSE (Meta-analysis of Observational Studies in Epidemiology) are guidelines for reporting observational studies, such as cohort, case-control, and cross-sectional studies (d -> 3).

Question 6. All vessels demonstrate the Windkessel effect except:

A. Abdominal aorta

B. Aorta

C. Renal artery

D. Radial artery

Correct answer: D

Radial artery The Windkessel effect describes the phenomenon where the pulsatile flow of blood ejected from the heart is converted into a more continuous, smoother flow in the distal vasculature. This is achieved by the elastic recoil of large arteries. During systole, the walls of

large elastic arteries like the aorta and its major branches (e.g., abdominal aorta, subclavian artery) stretch to accommodate the stroke volume, storing potential energy. During diastole, these elastic walls recoil, pushing the stored blood forward and maintaining diastolic pressure and flow. As arteries travel further from the heart, their composition changes from predominantly elastic to more muscular. The radial artery, a muscular artery in the forearm, has significantly less elastin in its walls compared to the aorta. Therefore, it exhibits a much-reduced Windkessel effect and demonstrates a more pulsatile pressure waveform. The renal artery is still a large branch off the aorta and retains significant elastic properties.

Question 7. Arrange the following sarcomere components from the most peripheral region to the most central region. 1. Z line 2. M line 3. A band 4. H zone

A. 1,3,4,2

B. 4,2,3,1

C. 2,3,4,1

D. 3,1,4,2

Correct answer: A

1,3,4,2 The sarcomere is the fundamental contractile unit of striated muscle, extending between two adjacent Z lines. When arranging its components from the outermost boundary towards the absolute center, the correct sequence is based on their defined anatomical positions. The outermost boundary of a single sarcomere is the Z line (1), which anchors the thin (actin) filaments. Moving inward from the Z line, one encounters the A band. The A band (3) represents the entire length of the thick (myosin) filaments. Within the central region of the A band, there is a lighter area where the thin filaments do not overlap the thick filaments; this is known as the H zone (4). Finally, at the very center of the H zone, and thus the absolute center of the sarcomere, is the M line (2), which serves to anchor the thick filaments. Therefore, the correct sequence from the outer boundary to the innermost point is Z line → A band → H zone → M line.

Question 8. Assertion

A. : The resting membrane potential (RMP) is affected by negatively charged proteins and phosphate ions within the cell Reason (R) : The Nernst equation determines an ion’s diffusion potential according to the concentration gradient across the cell membrane.

B. Both the assertion and reason are true, and the reason is the correct explanation for the assertion.

C. The assertion is true, but the reason is false.

D. The assertion is false, but the reason is true.

Correct answer: B

Both the assertion and reason are true, and the reason is the correct explanation for the assertion. The resting membrane potential (RMP) is primarily determined by the distribution of

ions across the cell membrane, especially potassium (K^+). Inside the cell, there are large negatively charged proteins and organic phosphate ions that are impermeable to the cell membrane. These fixed intracellular anions contribute to the overall negative charge within the cell and influence the distribution of diffusible ions such as K^+ and Na^+. Because K^+ tends to diffuse out of the cell down its concentration gradient, the impermeable negative proteins help retain some positive ions inside, thereby contributing to the negative resting membrane potential. The Nernst equation calculates the equilibrium (diffusion) potential for a specific ion based on its concentration gradient across the membrane. Since RMP largely depends on the equilibrium potential of potassium, and the intracellular negatively charged proteins influence the potassium concentration gradient, the Nernst equation helps explain how these gradients generate membrane potential. Thus, both statements are correct, and the reason appropriately explains the assertion.

Question 9. Which factors are responsible for the latent period observed in a single muscle twitch? 1. Excitation-contraction coupling 2. Time interval from the point of stimulus to the onset of contraction 3. Neuromuscular junction (NMJ) transmission 4. Transfer of calcium back into the sarcoplasmic reticulum via SERCA

A. 1,2,3

B. 1, 2, 3, 4

C. 1,3,4

D. 2,3,4

Correct answer: A

1,2,3 The latent period of a muscle twitch is defined as the time interval from the application of a stimulus to the beginning of the actual muscle contraction. It is a brief delay during which a series of critical electrochemical events must occur before tension can be generated. These events include the transmission of the action potential across the neuromuscular junction (NMJ), which involves the release of acetylcholine, binding to receptors, and depolarization of the sarcolemma. Following this, the process of excitation-contraction coupling takes place. This involves the propagation of the muscle action potential along the T-tubules, triggering the release of calcium from the sarcoplasmic reticulum, and the binding of calcium to troponin to initiate cross-bridge cycling. The reuptake of calcium into the sarcoplasmic reticulum by the SERCA pump (4) is the process that causes muscle relaxation and occurs after the contraction phase, not during the latent period.

Question 10. What is the correct sequence of band arrangement within a sarcomere?

A. I-Z-M-A-H

B. Z-H-M-A-I

C. Z-I-A-H-M

D. Z-H-I-A-M

Correct answer: C

Z-I-A-H-M This question asks for the correct spatial arrangement of the bands and lines within a sarcomere, the fundamental contractile unit of a muscle fiber. A sarcomere is defined as the segment between two successive Z lines. Moving from one Z line towards the center of the sarcomere, the first region encountered is the I band, which is a light band containing only thin (actin) filaments. The Z line itself bisects the I band. Next is the A band, a dark band that represents the entire length of the thick (myosin) filaments. Within the center of the A band, there is a paler region where the thin and thick filaments do not overlap; this is the H zone. Finally, at the very center of the H zone and the sarcomere is the M line, which anchors the thick filaments. Therefore, the correct sequence of structures from the edge to the center is Z-I-A-H-M. BIOCHEMISTRY

Question 11. Which option results in the greatest thermogenic effect?

A. Fat

B. Protein

C. Carbohydrates

D. All have same effect

Correct answer: B

Protein The thermic effect of food (TEF), also known as specific dynamic action, refers to the increase in metabolic rate (energy expenditure) that occurs after ingesting food. This energy is required for the digestion, absorption, processing, and storage of the nutrients. The magnitude of the TEF varies significantly depending on the macronutrient composition of the meal. Protein has the highest thermic effect of all macronutrients. The body expends approximately 20-30% of the energy content of the ingested protein to process it. This is substantially higher than the TEF for carbohydrates , which is around 5-10%, and for fats, which have the lowest TEF at only 0-3%. This high energy cost for protein metabolism is due to the complex processes of deamination and the synthesis of urea, among other metabolic pathways involved in handling amino acids.

Question 12. What is the cause of Pompe disease?

A. Lysosomal acid alpha-glucosidase

B. B-Hexosaminidase-A

C. B-Galactocerebrosidase

D. B-Glucocerebrosidase

Correct answer: A

Lysosomal acid alpha-glucosidase Pompe disease, also known as Glycogen Storage Disease Type II, is an autosomal recessive lysosomal storage disorder. It is caused by a deficiency of the enzyme lysosomal acid alpha-glucosidase, also known as acid maltase. In a healthy individual, this enzyme is responsible for breaking down glycogen into glucose within the lysosomes. When

the enzyme is deficient, glycogen accumulates progressively within the lysosomes of various tissues, leading to cellular damage and organ dysfunction. The most severely affected tissues are cardiac and skeletal muscle, resulting in profound muscle weakness (hypotonia), respiratory insufficiency, and, in the classic infantile form, a massive hypertrophic cardiomyopathy that typically leads to death within the first year of life. The other enzymes listed are deficient in different lysosomal storage diseases : B-Hexosaminidase-A in Tay-Sachs disease , B-Galactocerebrosidase in Krabbe disease , and B-Glucocerebrosidase in Gaucher disease.

Question 13. Which vitamin deficiency is linked to xanthurenic aciduria?

A. Vitamin B6

B. Vitamin B12

C. Vitamin B5

D. Vitamin B7

Correct answer: A

Vitamin B6 Xanthurenic aciduria refers to the excessive excretion of xanthurenic acid in the urine. This is a characteristic biochemical finding in vitamin B6 deficiency. Vitamin B6, in its active form pyridoxal phosphate (PLP), is an essential cofactor for numerous enzymes involved in amino acid metabolism. One such enzyme is kynureninase, which is part of the metabolic pathway that converts tryptophan to niacin. When there is a deficiency of vitamin B6, the activity of kynureninase is impaired. This creates a metabolic block, causing the upstream intermediate, 3-hydroxykynurenine, to be shunted into an alternative pathway where it is converted to xanthurenic acid. This abnormal metabolite then accumulates and is excreted in the urine. Therefore, measuring urinary xanthurenic acid after a tryptophan load is a functional test used to assess vitamin B6 status.

Question 14. What is the cause of Barth syndrome?

A. Cardiolipin

B. Sphingomyelin

C. Glycolipids

D. Cerebroside

Correct answer: A

Cardiolipin Barth syndrome is a rare, X-linked genetic disorder characterized by a triad of cardiomyopathy (often dilated), neutropenia, and skeletal myopathy with growth retardation. The underlying cause is a mutation in the TAZ gene, which encodes for an enzyme called tafazzin. Tafazzin is essential for the remodeling of cardiolipin, a unique phospholipid found almost exclusively in the inner mitochondrial membrane. This remodeling process is critical for maintaining the proper structure and function of cardiolipin. Defective tafazzin leads to abnormal cardiolipin composition, which in turn impairs the structure of the inner mitochondrial membrane and the function of the electron transport chain, leading to deficient energy

production. This mitochondrial dysfunction is responsible for the diverse clinical manifestations of the syndrome, particularly affecting energy-demanding tissues like the heart and skeletal muscle. The other lipids listed are involved in different cellular structures and metabolic pathways.

Question 15. Calculate the Anion Gap based on the following values: Na + : 145 mEq/ L K + : 4 mEq/L Cl - : 90 mEq/L HCO 3 - : 15 mEq/L

A. 35

B. 40

C. 28

D. 12

Correct answer: B

40 To calculate the Anion Gap (AG), we use the formula: Anion Gap = $(Na^+ + K^+) - (Cl^- + HCO_3^-)$ Now substitute the given values:

Question 16. The liver is capable of producing ketone bodies but cannot utilize them because it lacks which enzyme?

A. Thiophorase

B. Alkaline phosphatase

C. Alanine transaminase

D. Thiolase

Correct answer: A

Thiophorase During periods of fasting, starvation, or uncontrolled diabetes, the liver engages in ketogenesis, producing ketone bodies (acetoacetate and β -hydroxybutyrate) from fatty acid oxidation. These ketone bodies are then exported into the bloodstream to be used as an energy source by extrahepatic tissues like the brain, heart, and skeletal muscle. For these peripheral tissues to utilize ketone bodies, they must first convert acetoacetate back into acetyl-CoA for entry into the TCA cycle. This activation step is catalyzed by the mitochondrial enzyme succinyl-CoA:3-ketoacid-CoA transferase, more commonly known as thiophorase. The liver is the site of ketone body synthesis but notably lacks this thiophorase enzyme. This enzymatic deficiency prevents the liver from utilizing the ketones it produces, ensuring that they are available for export to other tissues that critically need them for energy.

Question 17. Which enzyme deficiency is responsible for Pompe’s disease?

A. Lysosomal acid alpha glucosidase

B. Glucose 6 phosphatase

C. Muscle phosphorylase

D. Phosphofructokinase

Correct answer: A

Lysosomal acid alpha glucosidase Pompe disease is also known as Glycogen Storage Disease Type II. It is an autosomal recessive metabolic disorder that results from a deficiency of the enzyme lysosomal acid alpha-glucosidase, also commonly called acid maltase. This enzyme's function is to break down glycogen into glucose within the acidic environment of the lysosomes. A deficiency of this enzyme leads to the massive accumulation of glycogen within the lysosomes of virtually all cells in the body. This lysosomal engorgement disrupts normal cellular function and leads to organ damage. The most severely affected tissues are cardiac and skeletal muscle, which rely heavily on glycogen metabolism. The classic infantile form presents with severe muscle weakness (hypotonia), respiratory distress, and a massive hypertrophic cardiomyopathy. The other enzymes listed are deficient in different glycogen storage diseases: Glucose-6-phosphatase in Von Gierke disease and muscle phosphorylase in McArdle disease. PATHOLOGY

Question 18. Which of the following options is incorrectly matched?

A. Motilin-M cells from duodenum and jejunum

B. CCK-I cells of duodenum and pancreas

C. Gastrin-G cells from stomach

D. Secretin-S cells of duodenum and jejunum

Correct answer: B

CCK-I cells of duodenum and pancreas This question tests knowledge of the cellular origins of major gastrointestinal hormones. Gastrin is produced by G cells, which are primarily located in the antrum of the stomach. Secretin is secreted by S cells found in the mucosa of the duodenum and jejunum. Motilin is secreted by M cells (or Mo cells) located in the crypts of the duodenum and jejunum. Cholecystokinin (CCK) is secreted by I cells, which are indeed found in the duodenum and jejunum; however, the statement also includes the pancreas as a site of I cell location, which is incorrect. The pancreas is a target organ for CCK (which stimulates enzyme secretion), but it does not contain I cells that produce the hormone. Therefore, this option contains an inaccurate location for the cell type.

Question 19. What immunologic defect is seen in B cells when CD40 is absent?

A. Inability of neutrophils against infections

B. Decreased IgG and increase in IgM

C. Lack of CD8-mediated cytotoxicity

D. Total lack of NK cells

Correct answer: B

Decreased IgG and increase in IgM The interaction between the CD40 ligand (CD40L or CD154) on activated helper T cells and the CD40 receptor on B cells is absolutely essential for B cell activation, proliferation, and differentiation. Specifically, this T-cell help mediated by CD40-CD40L interaction is required for the process of immunoglobulin class switching. Without

this signal, B cells are unable to switch from producing their initial IgM antibodies to producing other isotypes like IgG, IgA, or IgE. A genetic deficiency in CD40L (on T cells) or, more rarely, CD40 (on B cells) leads to a condition known as Hyper-IgM Syndrome. This immunodeficiency is characterized by normal or elevated levels of IgM in the serum, but a profound deficiency or complete absence of IgG, IgA, and IgE. This leads to recurrent pyogenic infections. MEDINK

Question 20. What occurs when misfolded proteins accumulate abnormally?

A. Creutzfeldt-Jakob disease

B. Nephritic syndrome

C. Sickle cell anemia

D. Megaloblastic anemia

Correct answer: A

Creutzfeldt-Jakob disease A number of diseases, known as proteinopathies or protein misfolding diseases, are caused by the accumulation of abnormally folded proteins that aggregate and cause cellular damage. Creutzfeldt-Jakob disease (CJD) is the classic example of a human prion disease, which falls into this category. It is caused by the conversion of the normal cellular prion protein (PrPC) into an abnormal, misfolded, and infectious isoform (PrPSc). This misfolded protein is resistant to degradation and acts as a template to convert more normal PrPC into the abnormal form, leading to its exponential accumulation as insoluble aggregates in the brain. This process results in spongiform encephalopathy and a rapidly progressive, fatal neurodegenerative disease. In contrast, sickle cell anemia is caused by a mutation leading to hemoglobin polymerization, and megaloblastic anemia is due to impaired DNA synthesis, not protein misfolding.

Question 21. In gonadal sex reversal syndrome with an XX karyotype, what is the most common underlying cause?

A. Point mutation

B. Deletion

C. Translocation

D. Non-sense mutation

Correct answer: C

Translocation 46,XX testicular disorder of sex development (also known as XX male syndrome) is a condition where an individual has a female karyotype (46,XX) but develops a male phenotype, including testes. The primary determinant of male development is the SRY (Sex-determining Region Y) gene, which is normally located on the Y chromosome. The most common cause of 46,XX male syndrome, accounting for about 80% of cases, is an unequal crossing-over event during paternal meiosis. This results in the translocation of the SRY gene from the Y chromosome onto the X chromosome. The resulting X chromosome now carries the SRY gene. When an embryo inherits this SRY-positive X chromosome along with a normal X

chromosome from the mother, it will have a 46,XX karyotype but will develop as a male due to the presence of the SRY gene, which initiates testis development.

Question 22. Which of the following genes functions as an inhibitor of apoptosis?

A. BAK

B. MCL-1

C. BID

D. NOXA

Correct answer: B

MCL-1 The intrinsic (mitochondrial) pathway of apoptosis is tightly regulated by the BCL-2 family of proteins, which includes both pro-apoptotic and anti-apoptotic members. The pro-apoptotic members include the "effectors" like BAX and BAK , which form pores in the mitochondrial membrane, and the "BH3-only" sensors like BID and NOXA, which activate the effectors or inhibit the anti-apoptotic members. The anti-apoptotic (pro-survival) members act as inhibitors of apoptosis by binding to and sequestering the pro-apoptotic proteins. This group includes BCL-2, BCL-XL, and MCL-1 (Myeloid Cell Leukemia-1). Therefore, MCL-1 is a key inhibitor of apoptosis, and its overexpression is a common mechanism for cancer cells to evade cell death. BAK, BID, and NOXA are all pro-apoptotic proteins that promote cell death.

Question 23. How can IDA be interpreted? a. Low serum ferritin b. Low transferrin saturation c. Low serum iron d. Increased TIBC

A. abcd

B. ab

C. cd

D. acd

Correct answer: A

abcd Iron Deficiency Anemia (IDA) has a characteristic pattern on iron studies that reflects the body's depleted iron stores and its attempt to compensate. Serum ferritin is a measure of stored iron, and a low level is the most specific and earliest indicator of iron deficiency (a). Serum iron measures the amount of iron circulating in the blood bound to transferrin, and it is also low in IDA (c). The Total Iron-Binding Capacity (TIBC) is an indirect measure of transferrin, the protein that transports iron. In an effort to acquire more iron, the liver increases the production of transferrin, leading to an increased TIBC (d). Finally, the transferrin saturation, calculated as (serum iron / TIBC) x 100, is low because there is very little iron available to saturate the increased amount of transferrin (b). All four of these findings together form the classic biochemical profile of iron deficiency anemia.

Question 24. What does the absence of CD40 indicate in an individual?

A. B cell absent

B. T cell absent

C. IgM increase

D. IgG increase

Correct answer: C

IgM increase The interaction between the CD40 receptor, expressed on B cells and other antigen-presenting cells, and its ligand, CD40L (CD154), expressed on activated T helper cells, is a critical step in humoral immunity. This interaction is essential for inducing immunoglobulin class switching in B cells, allowing them to switch from producing IgM to producing other isotypes like IgG, IgA, and IgE. It is also required for the formation of germinal centers and the development of memory B cells. In an individual with a genetic defect leading to the absence of functional CD40 (or CD40L), class switching cannot occur. As a result, B cells can only produce IgM antibodies. This leads to a specific type of immunodeficiency known as Hyper-IgM Syndrome, which is characterized by normal or, more typically, increased levels of serum IgM and a profound deficiency of IgG, IgA, and E.

Question 25. To prevent contamination, blood should be drawn into vacutainers in the following order:

A. Red, Light blue, Violet, Grey

B. Blue, Violet, Red, Grey

C. Blue, Red, Violet, Grey

D. Grey, Blue, Red, Violet

Correct answer: C

Blue, Red, Violet, Grey When drawing multiple tubes of blood from a single venipuncture, a specific "order of draw" must be followed to prevent cross-contamination of additives between tubes, which could interfere with test results. The standardized order is based on the type of additive in the tube stopper. While the exact order can have minor variations, the generally accepted sequence is: First, blood culture bottles (if needed). Second, coagulation tubes, which have a light blue top and contain sodium citrate. Third, serum tubes, which can be a red top (no additive, allows clotting) or a serum separator tube (SST). Fourth, tubes with heparin (green top). Fifth, tubes with EDTA, which have a lavender or violet top. Finally, tubes with a glycolysis inhibitor, which have a grey top (containing sodium fluoride and potassium oxalate). Therefore, the correct sequence among the given options is Blue, Red, Violet, Grey.

Question 26. In a 60-year-old man with generalized lymphadenopathy, elevated white blood cell count, and smudge cells on peripheral smear, which further diagnostic test should be performed?

A. Flow cytometry from peripheral blood

B. Cytogenetic study

C. Bone marrow biopsy

D. X-ray crystallography

Correct answer: A

Flow cytometry from peripheral blood The clinical presentation of an older adult with lymphadenopathy, lymphocytosis, and the presence of smudge cells (fragile lymphocytes that are crushed during slide preparation) on a peripheral blood smear is highly suggestive of Chronic Lymphocytic Leukemia (CLL). While the smear provides strong evidence, the definitive diagnosis and immunophenotyping of the clonal B-cell population are established using flow cytometry on a peripheral blood sample. Flow cytometry is a powerful technique that uses laser-based technology to analyze the cell surface markers of individual cells. It can identify the characteristic immunophenotype of CLL cells, which involves the co-expression of B-cell markers (like CD19 and CD20) with the T-cell marker CD5, along with expression of CD23. This unique pattern confirms the diagnosis. Cytogenetics (B) and bone marrow biopsy (C) are important for prognostication but are not the primary diagnostic test.

Question 27. Which of the following methods is not used to detect abnormal gene sequences?

A. RFLP analysis

B. Flow cytometry

C. FISH

D. Pyrosequencing

Correct answer: B

Flow cytometry The detection of abnormal gene sequences involves various molecular biology techniques. Restriction Fragment Length Polymorphism (RFLP) analysis is a classic technique that can detect sequence variations that alter restriction enzyme cutting sites. Pyrosequencing is a method of DNA sequencing that can identify the exact nucleotide sequence of a gene. Fluorescence In Situ Hybridization (FISH) uses fluorescent probes to detect the presence, absence, or location of specific DNA sequences on chromosomes, and is used for detecting larger scale abnormalities like deletions or translocations. In contrast, flow cytometry is a technique used to analyze the physical and chemical characteristics of cells. It is primarily used to measure cell surface protein expression (immunophenotyping), cell size, and granularity, and for cell sorting. It analyzes proteins on the cell surface, not the underlying gene sequence.

Question 28. What does IDA stand for and how is it interpreted in the medical field?

A. Low serum ferritin

B. Low transferrin saturation

C. Increased TIBC

D. All of the above

Correct answer: D

All of the above IDA stands for Iron Deficiency Anemia. Its diagnosis is confirmed by a

characteristic pattern on a panel of blood tests known as iron studies. This pattern reflects both the depletion of the body's iron stores and its compensatory physiological responses. Low serum ferritin is the most specific indicator, as ferritin is the primary iron storage protein, and its levels directly correlate with total body iron stores. The body responds to the deficiency by increasing the liver's production of transferrin, the protein that transports iron. This is measured as an increased Total Iron-Binding Capacity (TIBC). Since there is very little iron to be transported, the transferrin saturation, which reflects the percentage of transferrin that is actually carrying iron, is consequently low. Therefore, the combination of low ferritin, low serum iron, increased TIBC, and low transferrin saturation is the classic profile for interpreting a diagnosis of iron deficiency anemia.

Question 29. In Cystic Fibrosis, which membrane channel is primarily impacted?

A. Sodium

B. Chloride

C. Calcium

D. Potassium

Correct answer: B

Chloride Cystic fibrosis (CF) is an autosomal recessive genetic disorder caused by mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene. The protein encoded by this gene functions as an ATP-gated ion channel located in the apical membrane of epithelial cells in various organs, including the lungs, pancreas, intestines, and sweat glands. The primary function of the CFTR protein is to transport chloride ions across the cell membrane. Defective CFTR protein results in impaired chloride transport, which in turn leads to abnormal transport of sodium and water across the epithelial surface. This disruption of ion and water flux is the fundamental defect that causes the production of abnormally thick, viscous mucus in the respiratory and gastrointestinal tracts and abnormally salty sweat, which are the hallmarks of the disease.

Question 30. Which of the following statements about amyloidosis is correct?

A. Beta pleated sheets

B. Secondary amyloidosis is AL

C. Amyloidosis is called so because of deposition of complex carbohydrates

D. All of the above

Correct answer: A

Beta pleated sheets Amyloidosis is a group of diseases characterized by the extracellular deposition of abnormal, insoluble fibrillar proteins in various tissues and organs. While the precursor proteins that form amyloid deposits are diverse (e.g., immunoglobulin light chains in AL amyloidosis, serum amyloid A in AA amyloidosis), all amyloid fibrils share a common and defining ultrastructural feature. This is their characteristic cross-beta-pleated sheet

conformation. This specific protein fold makes the fibrils extremely stable and resistant to proteolysis, leading to their progressive accumulation and subsequent tissue damage. The term "amyloid" was originally a misnomer, as it was thought to be a starch-like carbohydrate deposit, but it is in fact proteinaceous (C is false). Secondary (AA) amyloidosis is caused by deposition of serum amyloid A protein, not immunoglobulin light chains (AL), which cause primary amyloidosis (B is false). PHARMACOLOGY

Question 31. A diabetic woman’s HbA1c decreased from 7.6 to 6.7 after receiving a medication that raised GIP and GLP-1 levels and lowered glucagon secretion. Which drug was most likely given?

A. Pramlintide

B. Voglibose

C. Sitagliptin

D. Liraglutide

Correct answer: C

Sitagliptin The physiological effects described—increased levels of the incretin hormones GIP (glucose-dependent insulinotropic polypeptide) and GLP-1 (glucagon-like peptide-1), and a subsequent decrease in glucagon levels—are characteristic of the mechanism of action of dipeptidyl peptidase-4 (DPP-4) inhibitors. Sitagliptin is a member of this class of oral antidiabetic drugs. The DPP-4 enzyme is responsible for the rapid degradation of endogenous incretin hormones. By inhibiting this enzyme, sitagliptin increases the circulating half-life and concentration of active GIP and GLP-1. These elevated incretin levels then potentiate glucose-dependent insulin secretion and suppress glucagon release, leading to improved glycemic control, as evidenced by the patient's reduction in HbA1c. Liraglutide (D) is a GLP-1 receptor agonist, which mimics the action of GLP-1 but does not increase GIP levels.

Question 32. Which monoclonal antibody, recently approved, is used in the treatment of Rett syndrome?

A. L-carnitine

B. Folinic acid

C. Trofinetide

D. None of the above

Correct answer: C

Trofinetide Rett syndrome is a rare, severe neurodevelopmental disorder primarily affecting females. In March 2023, the U.S. Food and Drug Administration (FDA) approved trofinetide (brand name Daybue) for the treatment of Rett syndrome in adult and pediatric patients two years of age and older. This was a landmark approval as it is the very first drug specifically indicated for this condition. Trofinetide is a synthetic analogue of the N-terminal tripeptide of insulin-like growth factor 1 (IGF-1). It is thought to work by reducing inflammation and

supporting synaptic function in the brain, thereby addressing some of the core symptoms of the disorder. It is not a monoclonal antibody. L-carnitine and folinic acid are supplements that may be used adjunctively but are not specific approved treatments for the core syndrome.

Question 33. Which of the following statements about the clinical therapeutic index is correct?

A. Therapeutic index is LD50/ED50

B. Dose in which efficacy and toxicity can be balanced in an individual

C. Indicative of therapeutic index in a population vs individual

D. All of the Above

Correct answer: A

Therapeutic index is LD50/ED50 The therapeutic index (TI) is a quantitative measure of the relative safety of a drug. It is a ratio that compares the dose of a drug that produces a toxic effect to the dose that produces a therapeutic or desired effect. The classical definition of the therapeutic index, derived from preclinical animal studies, is the ratio of the LD50 (the dose that is lethal to 50% of the population) to the ED50 (the dose that is therapeutically effective in 50% of the population). A higher therapeutic index indicates a wider margin of safety, meaning a much larger dose is needed to cause toxicity than is needed for the desired effect. Conversely, a drug with a low or narrow therapeutic index requires careful monitoring as the effective and toxic doses are close together. The other options describe concepts related to therapeutic drug monitoring or risk-benefit analysis rather than the formal definition of the TI.

Question 34. For vancomycin dosage, which nomogram scale is employed?

A. Salazar scale

B. Matzke scale

C. Hallstead scale

D. Rumack Matthew nomogram

Correct answer: B

Matzke scale Dosing vancomycin, an antibiotic used for serious Gram-positive infections, requires careful consideration of a patient's renal function to achieve therapeutic trough concentrations while avoiding nephrotoxicity. Several nomograms have been developed to guide initial dosing based on creatinine clearance (CrCl). The Matzke nomogram is a well-known and widely used tool for this purpose. It provides recommendations for vancomycin maintenance doses and dosing intervals based on the patient's calculated CrCl. By using this nomogram, clinicians can more accurately select an initial regimen that is likely to achieve the target therapeutic range. The Rumack-Matthew nomogram (D) is used specifically for assessing the risk of hepatotoxicity after an acute paracetamol (acetaminophen) overdose. The other scales mentioned are not standard tools for vancomycin dosing.

Question 35. Match the following? A. Beta 1 1. Mirabegron B. Beta 2 2. Betaxolol C. Beta 3 3. Isoprenaline NODIA MEDINK

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

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

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

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

Correct answer: C

a-2, b-3,c-1 This question requires matching beta-adrenergic receptors with drugs that act on them. 1. Beta-1 receptors are primarily found in the heart. Betaxolol is a cardioselective beta-blocker, meaning it primarily antagonizes Beta-1 receptors, making it useful for treating hypertension and glaucoma (a -> 2). 2. Beta-2 receptors are found in the smooth muscle of the bronchi and blood vessels. Isoprenaline (isoproterenol) is a non-selective beta-agonist that stimulates both Beta-1 and Beta-2 receptors. Its Beta-2 activity causes bronchodilation. (b -> 3) 3. Beta-3 receptors are predominantly found in adipose tissue and the detrusor muscle of the urinary bladder. Mirabegron is a selective Beta-3 receptor agonist. Its action on the bladder's detrusor muscle causes it to relax, increasing bladder capacity, and it is used to treat overactive bladder. (c -> 1)

Question 36. Which of the following is a recently approved drug for the treatment of Rett syndrome?

A. Trofinetide

B. Ambien

C. Lunesta

D. GHB opioids

Correct answer: A

Trofinetide Rett syndrome is a complex and severe X-linked neurodevelopmental disorder that previously had no specific approved treatments. In March 2023, the FDA granted approval to trofinetide (brand name Daybue), making it the first-ever drug specifically indicated for the treatment of Rett syndrome in patients aged two years and older. Trofinetide is a synthetic analogue of a naturally occurring molecule in the brain and is thought to work by reducing inflammation and oxidative stress and improving synaptic function. This approval represents a significant milestone in the management of this rare disease, offering a new therapeutic option to address some of its core symptoms. Ambien (zolpidem) and Lunesta (eszopiclone) are hypnotic drugs used for insomnia. GHB is a CNS depressant. FORENSIC MEDICINE

Question 37. Which of the following statements is false regarding a girl found deceased in a lake, indicating a case of ante-mortem drowning?

A. Water in the stomach

B. Froth on nose and mouth

C. No Mud and vegetation in respiratory tract

D. Cadaveric spasm in hand muscle

Correct answer: C

No Mud and vegetation in respiratory tract Ante-mortem drowning means the person was alive when they entered the water and died as a result of submersion. The autopsy findings reflect the active process of breathing in water. A classic external sign is the presence of fine, lacy, and persistent froth at the mouth and nose, which is formed by the mixing of air, water, and mucus during agonal respirations. Internally, as the victim gasps for air underwater, they will inhale and swallow water, leading to the presence of water in the stomach and duodenum. If the drowning occurs in natural water, it is also common to find foreign material from the water body, such as mud, sand, and vegetation, deep within the respiratory tract, extending to the terminal bronchioles. Cadaveric spasm may be present, with the victim's hands tightly clutching weeds or debris. Therefore, the absence of mud and vegetation in the airways would be inconsistent with typical ante-mortem drowning.

Question 38. Which of the following statements about collecting samples in a case of alcohol intoxication is correct?

A. Sample area cleaned with spirit

B. Sample area cleaned with soap and water

C. Sample should be preserved without preservative

D. Only one urine sample is required

Correct answer: B

Sample area cleaned with soap and water When collecting a blood sample for the medicolegal estimation of blood alcohol concentration, it is absolutely critical to avoid any potential contamination of the sample with external alcohol. Therefore, the venipuncture site must not be cleaned with any alcohol-containing swab, such as an alcohol-based spirit. The correct procedure is to clean the skin with a non-alcoholic antiseptic solution or simply with soap and water. Furthermore, the collected blood sample must be stored in a vial containing a preservative, typically sodium fluoride, to inhibit glycolysis and prevent the fermentation of glucose by bacteria, which could falsely elevate the alcohol level. A single urine sample (D) is less reliable than blood for determining the level of intoxication at a specific time.

Question 39. Which substance is responsible for producing a bitter taste that helps discourage the ingestion of toxic compounds?

A. Amino acids

B. Hydrogen ions

C. Alkaloids

D. Aldehyde

Correct answer: C

Alkaloids The sense of taste has evolved to help organisms identify nutritious foods and avoid harmful toxins. The five basic tastes are sweet, sour, salty, umami, and bitter. The perception of a bitter taste is thought to serve as a primary warning system against ingesting potentially poisonous substances. Many toxic compounds found in nature, particularly in plants, are alkaloids. These are naturally occurring nitrogen-containing compounds that often have potent physiological effects and are frequently toxic. Examples include caffeine, nicotine, strychnine, and quinine. The human gustatory system has a large family of bitter taste receptors (T2Rs) that can detect a vast array of these structurally diverse and potentially harmful alkaloid compounds, triggering an aversive response. Amino acids (A) are associated with umami or sweet tastes, while hydrogen ions (B) are responsible for a sour taste.

Question 40. A patient presents with peripheral neuropathy and a condition known as “black foot disease.” These clinical features most likely indicate poisoning due to which metal?

A. Arsenic

B. Lead

C. Mercury

D. Cadmium

Correct answer: A

Arsenic This combination of symptoms is highly characteristic of chronic arsenic poisoning. Chronic exposure to arsenic, often through contaminated drinking water, leads to a multisystem disease. A symmetrical, sensory-predominant peripheral neuropathy is a classic neurological manifestation. Additionally, arsenic has profound effects on the vascular system. "Blackfoot disease" is a severe form of peripheral vascular disease characterized by gangrene of the extremities, particularly the feet, which is endemic to areas of Taiwan with high levels of arsenic in the artesian well water. The disease is a result of arsenic-induced atherosclerosis and vasculitis. Other signs of chronic arsenicism include skin changes like hyperkeratosis and hyperpigmentation ("raindrop" pigmentation). Lead poisoning (B) causes a predominantly motor neuropathy, while mercury (C) and cadmium (D) have different toxicity profiles.

Question 41. What is the type of hypoxia caused by carbon monoxide poisoning?

A. Anemic hypoxia

B. Hypoxic hypoxia

C. Stagnant hypoxia

D. Histotoxic hypoxia

Correct answer: A

Anemic hypoxia Hypoxia is classified into four main types based on its underlying cause. Anemic hypoxia is defined as a condition where the partial pressure of oxygen in the arterial blood (PaO2) is normal, but the oxygen-carrying capacity of the blood is reduced. This is

precisely the mechanism of carbon monoxide (CO) poisoning. CO has an affinity for hemoglobin that is over 200 times greater than that of oxygen. When inhaled, CO avidly binds to hemoglobin to form carboxyhemoglobin (COHb), which is incapable of transporting oxygen. This effectively reduces the amount of functional hemoglobin available to carry oxygen to the tissues, thus decreasing the blood's total oxygen content, despite a normal PaO2. This is functionally equivalent to having a severe anemia. Histotoxic hypoxia (D) is caused by cyanide, which prevents cells from using oxygen. MICROBIOLOGY

Question 42. Which of the listed microorganisms is expected to be resistant to meropenem and aminoglycosides, yet remain susceptible to piperacillin–clavulanate and cotrimoxazole?

A. Stenotrophomonas

B. Acinetobacter

C. Pseudomonas

D. Burkholderia cepaci

Correct answer: A

Stenotrophomonas Stenotrophomonas maltophilia is an increasingly important opportunistic nosocomial pathogen, particularly in immuno compromised and critically ill patients. It is notorious for its extensive intrinsic antibiotic resistance profile, which can make treatment challenging. A characteristic and defining feature of S. maltophilia is its intrinsic resistance to carbapenems, including meropenem, due to the production of a metallo-beta-lactamase (L1) and an efflux pump. It is also typically resistant to aminoglycosides. However, unlike other multidrug-resistant non-fermenters like Pseudomonas and Acinetobacter, S. maltophilia often remains susceptible to other agents. The treatment of choice for infections caused by this organism is trimethoprim-sulfamethoxazole (cotrimoxazole). It may also show susceptibility to other drugs like ticarcillin-clavulanate or ceftazidime, but it is characteristically resistant to carbapenems and aminoglycosides while being sensitive to cotrimoxazole.

Question 43. A man frequently encounters cat feces during his activities. Which stage of the organism present in the feces is capable of causing infection?

A. Tachyzoite

B. Gametocyte

C. Oocyst

D. Bradyzoite

Correct answer: C

Oocyst This question describes the transmission of Toxoplasma gondii, the parasite that causes toxoplasmosis. Cats are the definitive hosts for this parasite, meaning they are the only host in which the parasite's sexual life cycle can occur. This sexual cycle takes place in the intestinal epithelium of the cat and results in the formation of oocysts, which are then shed in the cat's

feces. These oocysts are not immediately infectious but must undergo a process of sporulation in the environment, which takes 1-5 days. Once sporulated, these oocysts become highly infectious to intermediate hosts, including humans, who can acquire the infection by ingesting contaminated soil, water, or food. Tachyzoites are the rapidly dividing forms found in acute infection, and bradyzoites are the dormant forms found in tissue cysts in chronically infected hosts.

Question 44. In a male renal transplant recipient on immunosuppressants, a biopsy reveals budding cells with pseudohyphae. Which organism is the most likely cause?

A. Invasive aspergillosis

B. Invasive candidiasis

C. Histoplasmosis

D. Pneumocystis

Correct answer: B

Invasive candidiasis The patient's status as a kidney transplant recipient on immunosuppressive therapy places him at high risk for opportunistic fungal infections. The key to the diagnosis lies in the histopathological findings described in the biopsy. The presence of both budding yeast cells and pseudohyphae is the characteristic microscopic morphology of Candida species, particularly Candida albicans. Candida is a dimorphic fungus, meaning it can grow as both a unicellular yeast (which reproduces by budding) and as filamentous pseudohyphae (chains of elongated budding cells). This combination is a classic feature seen in tissue biopsies of invasive candidiasis. In contrast, Aspergillus typically appears as septate hyphae with acute-angle branching, Histoplasma appears as small intracellular yeasts, and Pneumocystis has characteristic cystic forms. The biopsy findings are most consistent with Candida.

Question 45. In an elderly patient with meningitis, whose CSF is evaluated using Gram stain and microscopy, NODIA page 219 INICET Examination Paper ANATOMY 1. What is the correct order of structures in the auditory pathway?

A. Eight nerve cochlear nuclei superior olivary nucleus lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex

B. Cochlear nuclei superior olivary nucleus → lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex → Eight nerve

C. Superior olivary nucleus lateral lemniscus → inferior colliculus medial geniculate body → auditory cortex → Eight nerve → Cochlear nuclei

D. Superior olivary nucleus inferior colliculus auditory cortex Cochlear nuclei lateral → medial geniculate body → Eight nerve lemniscus

Correct answer: A

Eight nerve cochlear nuclei superior olivary nucleus lateral lemniscus inferior colliculus → medial geniculate body → auditory cortex The central auditory pathway is a complex,

polysynaptic route that transmits sound information from the inner ear to the cerebral cortex for conscious perception. The pathway begins with the spiral ganglion neurons, whose axons form the cochlear division of the vestibulocochlear nerve (cranial nerve VIII). These fibers make their first synapse in the cochlear nuclei located in the brainstem. From here, auditory information ascends bilaterally, with a major synapse in the superior olivary nucleus, which is crucial for sound localization. The pathway continues upward through a major ascending tract known as the lateral lemniscus. The next significant relay station is the inferior colliculus in the midbrain, another key auditory processing center. Subsequently, fibers project to the medial geniculate body of the thalamus, the final subcortical relay nucleus. Finally, thalamocortical radiations carry the processed auditory information to the primary auditory cortex located in the temporal lobe. 2. Which nerve provides innervation to the gluteus maximus muscle? (A) Femoral nerve (B) Sciatic nerve (C) Inferior Gluteal Nerve (D) Superior gluteal nerve AAns (C) Inferior Gluteal Nerve The gluteus maximus is the largest and most superficial of the three gluteal muscles, and it serves as the primary extensor of the hip joint. Its motor innervation is provided solely by the inferior gluteal nerve. This nerve arises from the posterior divisions of the ventral rami of the L5, S1, and S2 spinal nerves within the lumbosacral plexus. It exits the pelvis through the greater sciatic foramen, inferior to the piriformis muscle, and travels a short course to innervate the overlying gluteus maximus muscle. It's important to differentiate this from the innervation of the other gluteal muscles; the gluteus medius and minimus, which are responsible for hip abduction and stabilization, are innervated by the superior gluteal nerve. The femoral nerve supplies the anterior thigh muscles, while the sciatic nerve innervates the posterior thigh and the leg and foot, passing deep to the gluteus maximus without supplying it. 3. What is the action mechanism of the muscle depicted in the image provided? (A) Retracts the scapula (B) Adduction of the shoulder (C) Extension of the shoulder (D) Medial rotation of the shoulder AAns (A) Retracts the scapula The muscle highlighted in the image is the trapezius, a large, diamond-shaped superficial muscle of the back and neck. The trapezius has three distinct sets of fibers—upper, middle, and lower—each with a different primary action on the scapula. While the upper fibers elevate the scapula and the lower fibers depress it, the horizontally oriented middle fibers are primarily responsible for scapular retraction. This action, also known as scapular adduction, involves pulling the scapulae medially, towards the vertebral column, as in the motion of "squaring the shoulders." This function is essential for stabilizing the scapula during movements of the arm and for maintaining proper posture. The other actions listed, such as adduction, extension, and medial rotation of the shoulder, are movements of the glenohumeral joint itself and are primarily executed by muscles that insert on the humerus, like the latissimus dorsi and pectoralis major, not the trapezius. 4. Match the following: A. Glossopharyngeal nerve 1. Shrugging of shoulder B. Spinal accessory nerve 2. Touch sensation from the poste- rior one-third of the tongue C. Facial nerve 3. Chewing D. Mandibular nerve 4. Taste from the anterior two third of the tongue (A) A-2, B-1, C-4, D-3 (B) A-2, B-3, C-4, D-1 (C)

A-4, B-1, C-2, D-3 (D) A-3, B-1, C-4, D-2 AAns (A) A-2, B-1, C-4, D-3 This question requires matching cranial nerves to their specific functions. 1. The Glossopharyngeal nerve (CN IX) provides general sensory innervation, including touch sensation, from the posterior one-third of the tongue. 2. The Spinal accessory nerve (CN XI) is a motor nerve that supplies the sternocleidomastoid and trapezius muscles. The action of the trapezius in elevating the scapula is tested by asking a patient to shrug their shoulders against resistance. 3. The Facial nerve (CN VII) carries special sensory afferent fibers for taste from the anterior two-thirds of the tongue via its chorda tympani branch. 4. The Mandibular nerve (CN V3), the third division of the trigeminal nerve, provides somatic motor innervation to the muscles of mastication, which are responsible for chewing. Therefore, the correct set of matches is A-2, B-1, C-4, and D-3. 5. Arrange the neural columns in medial-to-lateral order 1. Special somatic afferent 2. Special visceral efferent 3. General somatic efferent 4. General somatic afferent (A) GSE, SVE, GSA, SSA (B) SVE, GSA, SSA, GSE (C) GSA, SSA, GSE, SVE (D) SVE, GSE, GSA, SSA AAns (A) GSE, SVE, GSA, SSA During the development of the brainstem, the cranial nerve nuclei are organized into longitudinal functional columns arranged in a specific medial-to-lateral sequence. The sulcus limitans divides the plate into a medial motor (basal) plate and a lateral sensory (alar) plate. The motor columns are thus medial to the sensory columns. Within the motor plate, the most medial column is the General Somatic Efferent (GSE), innervating skeletal muscles derived from somites. Lateral to it is the Special Visceral Efferent (SVE) column, supplying muscles from the pharyngeal arches. In the sensory plate, the General Somatic Afferent (GSA) column is medial to the Special Somatic Afferent (SSA) column, which is the most lateral of all the columns. Therefore, the correct medial-to-lateral arrangement of the specified columns is GSE, SVE, GSA, and SSA. PHYSIOLOGY 6. What is the main factor responsible for causing acceleration in the fetal heart rate? (A) Carotid baroreceptor (B) Aortic baroreceptor

Question 46. What determines the DNA sequence?

A. Flow cytometry

B. FISH

C. RFLP

D. PCR

Correct answer: D

PCR The question, "What determines the DNA sequence?", is ambiguously phrased. However, interpreting it as asking which of the listed techniques is most fundamental to the process of analyzing or identifying a DNA sequence, the best answer is Polymerase Chain Reaction (PCR). PCR is a foundational molecular biology method used to amplify a specific segment of DNA exponentially, generating millions of copies from a minute starting sample. This amplification step is essential and often precedes direct DNA sequencing methods (like Sanger or next-generation sequencing), which are the ultimate techniques that "determine" the exact

order of nucleotides. In contrast, Flow cytometry (A) analyzes cell characteristics, not DNA sequences. FISH (B) visualizes the location of a known DNA sequence on a chromosome. RFLP (C) is a method that detects variations in DNA sequences by analyzing differences in restriction enzyme cutting sites, but it doesn't determine the full sequence itself. Therefore, PCR is the most critical enabling technology among the choices for any process that involves determining a DNA sequence.

Question 47. Which statement about rubella is incorrect?

A. Causes TORCH infection

B. Maculopapular rash that starts on face and spreads centrifugally to involve trunk and extremities

C. Flaviviruses

D. "Blueberry muffin" appearance

Correct answer: C

Flaviviruses Rubella, also known as German measles, is a viral illness with significant implications in pregnancy due to its teratogenic effects. It is a well-established member of the TORCH complex (Toxoplasmosis, Other, Rubella, Cytomegalovirus, Herpes), a group of pathogens capable of causing severe congenital defects (A). A characteristic feature of congenital rubella syndrome is a purpuric rash known as the "blueberry muffin" appearance, which is caused by sites of extramedullary hematopoiesis in the skin (D). The postnatal infection typically presents as a mild illness with a distinctive maculopapular rash that begins on the face and spreads downwards to the trunk and extremities (B). The incorrect statement pertains to its virological classification. The Rubella virus is the sole member of the Rubivirus genus, which belongs to the Togaviridae family. It is not a member of the Flaviviridae family (C), which includes other prominent viruses such as Dengue virus, Yellow Fever virus, and Zika virus.

Question 48. Match the following organisms with their correct incubation periods: a. Syphilis 1. 6 Days b. Chicken pox 2. 90 Days c. SARS COVID 3. 16 Days d. Hepatitis A 4. 28 Days

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

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

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

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

Correct answer: A

a-2, b-3, c-1, d-4 This question requires matching infectious diseases with their typical incubation periods. 1. Syphilis, caused by Treponema pallidum, has a highly variable incubation period for the primary chancre to appear, ranging from 9 to 90 days, with an average of 21 days (a -> 2). 2. Chicken pox (Varicella), caused by the Varicella-Zoster Virus, has an incubation

period of 10 to 21 days, with a typical average of 14 to 16 days (b -> 3). 3. SARS-CoV-2 (COVID-19) has an incubation period that can range from 2 to 14 days, but the median is approximately 5 to 6 days, making it the best fit for this option (c -> 1). 4. Hepatitis A has an average incubation period of about 28 days, with a range of 15 to 50 days (d -> 4). Based on these standard incubation periods, the correct sequence of matches is a-2, b-3, c-1, d-4.

Question 49. Which type of amyloidosis is typically seen in patients on dialysis?

A. A-beta

B. ß2-microglobulin

C. aTTR

D. AL

Correct answer: B

ß2-microglobulin Dialysis-related amyloidosis (DRA) is a serious long-term complication that occurs in patients with end-stage renal disease who have been on chronic hemodialysis for many years. This specific type of amyloidosis is caused by the deposition of amyloid fibrils derived from β 2-microglobulin. β 2-microglobulin is a small protein that is a component of the MHC class I molecule and is normally filtered by the glomeruli and catabolized in the renal tubules. In patients with kidney failure, this protein cannot be adequately cleared from the blood, and conventional dialysis membranes are also inefficient at removing it. Over time, the chronically elevated levels of β 2-microglobulin lead to its aggregation into amyloid fibrils, which deposit predominantly in osteoarticular structures, causing conditions like carpal tunnel syndrome and destructive spondyloarthropathy. The other amyloid types listed are associated with different diseases: AL with multiple myeloma, A β with Alzheimer's disease, and ATTR with familial or senile amyloidosis. PSM

Question 50. The following formula in the field of biostatistics represents: ( )) N x x 1 i 2 - - /

A. Standard Deviation

B. Odds ratio

C. Sample Mean

D. Median

Correct answer: A

Standard Deviation The formula provided, $\sqrt{[\ \Sigma\ (xi - \bar{x})^2 / (N-1)]}$, is the mathematical definition of the sample standard deviation. Let's break down the components of this important statistical measure. The term $(xi - \bar{x})$ represents the deviation of each individual data point (xi) from the sample mean ($\bar{x}$). These deviations are then squared, $(xi - \bar{x})^2$, to eliminate negative values. The sum of these squared deviations, $\Sigma\ (xi - \bar{x})^2$, is then divided by (N-1), which is the number of data points minus one, to calculate the sample variance. The use of (N-1) in the denominator provides an unbiased estimate of the population variance. Finally, the square root of the entire

expression is taken to bring the measure back to the original units of the data. The standard deviation is a crucial measure of the dispersion or spread of data points around their mean in a given sample.

Question 51. Please match the given columns based on Epidemiology Guidelines. a. CARE 1. RCT b. CONSORT 2. Case report c. PRISMA 3. Observational study NODIA MEDINK (C) Autonomic function of brainstem (D) Chemoreceptors

A. A2-B4-C1-D3

B. A4-B1-C2-D3

C. A2-B1-C4-D3

D. A4-B1-C3-D2

Correct answer: C

Autonomic function of brainstem Fetal heart rate (FHR) accelerations are transient increases in the heart rate of at least 15 beats per minute above the baseline, lasting for at least 15 seconds. These accelerations are a key indicator of fetal well-being on cardiotocography. They are primarily mediated by the fetal autonomic nervous system, specifically through sympathetic nervous system stimulation in response to fetal movement. When the fetus moves, the sympathetic nervous system is activated, leading to the release of catecholamines that increase the heart rate. The presence of these accelerations indicates that the fetus has an intact and responsive central nervous system, particularly the autonomic control centers within the brainstem. Baroreceptors (A, B) are primarily involved in responding to blood pressure changes, typically causing a decrease in heart rate when pressure rises. Chemoreceptors (D) respond to changes in oxygen and carbon dioxide levels.

Question 52. In biostatistics, the formula given below stands for? (σ) = √[Σ (x - μ)² / N]

A. Standard Deviation

B. Sample Variance

C. Sample Mean

D. Median

Correct answer: A

Standard Deviation The formula provided, $\sigma = \sqrt{[\ \Sigma\ (x - \mu\ )^2\ /\ N]}$, is the precise mathematical definition of the population standard deviation. The Greek letter sigma (σ) is the standard symbol for this parameter. The formula calculates the square root of the average of the squared deviations of each data point (x) from the population mean (μ). The sum of the squared deviations is divided by N, the total size of the population. This differs slightly from the sample standard deviation, which uses the sample mean ($\bar{x}$) and divides by (n-1) to provide an unbiased estimate. The standard deviation is a fundamental and widely used measure of the dispersion or variability of a set of data. It quantifies the average amount by which individual

data points in a distribution differ from the mean of that distribution, expressed in the original units of the data. ENT

Question 53. A 14-year-old girl visits an ENT specialist because she can hear sounds and understand speech sounds but cannot comprehend their meaning. Her Pure Tone Audiometry and Auditory Brainstem Response tests are normal. What is the most likely diagnosis?

A. Malingering

B. Auditory cortex lesion

C. Mixed transcortical aphasia

D. Wernicke's aphasia

Correct answer: D

Wernicke's aphasia This 14-year-old girl can hear sounds normally and her Pure Tone Audiometry (PTA) and Auditory Brainstem Response (ABR) are normal. This confirms that the peripheral auditory system and brainstem auditory pathways are intact. Therefore, the problem is not related to hearing loss or auditory nerve dysfunction. However, she is unable to comprehend the meaning of speech despite being able to hear it clearly. This indicates a disorder of language processing rather than sound perception. The area of the brain responsible for understanding spoken language is Wernicke’s area, located in the posterior part of the superior temporal gyrus of the dominant hemisphere (usually the left). In Wernicke’s aphasia, also called receptive aphasia, patients have fluent speech but impaired comprehension. They hear words but cannot interpret their meaning. Speech may be fluent yet nonsensical. An auditory cortex lesion would impair sound perception itself. Mixed transcortical aphasia affects both expression and comprehension. Malingering is unlikely given objective normal auditory testing. Thus, the most likely diagnosis is Wernicke’s aphasia.

Question 54. What is the accurate order of the auditory pathway?

A. Cochlea Spiral Ganglion Cochlear Nerve → Superior Olivary N

B. Spiral Ganglion Cochlea Cochlear Nerve → Superior Olivary N

C. Spiral Ganglion Cochlear Nerve → Cochlea → Superior Olivary N

D. Cochlea Spiral Ganglion Cochlear Nerve → Inferior Olivary N

Correct answer: A

Cochlea Spiral Ganglion Cochlear Nerve → Superior Olivary N This question asks for the correct initial sequence of the peripheral auditory pathway. Sound vibrations are first transduced into neural signals by the hair cells within the cochlea of the inner ear. These hair cells synapse with the first-order neurons of the auditory pathway. The cell bodies of these first-order neurons are located in the spiral ganglion, which is also situated within the cochlea. The axons of these spiral ganglion neurons then bundle together to form the cochlear nerve, which is the auditory division of the vestibulocochlear nerve (CN VIII). This nerve then travels from the cochlea to the

brainstem, where its fibers make their first central synapse in the cochlear nuclei. From there, the pathway continues to the superior olivary nucleus. Therefore, the correct sequence from the site of transduction to the first central relay stations is Cochlea → Spiral Ganglion → Cochlear Nerve → Superior Olivary Nucleus.

Question 55. What is the recommended treatment for an ICU patient diagnosed with influenza?

A. Amantadine

B. Cephalosporin + Ganciclovir

C. Clarithromycin

D. None of the above

Correct answer: D

None of the above The appropriate treatment for a patient with severe influenza infection, particularly one requiring ICU admission, is an antiviral medication that specifically targets the influenza virus. The primary class of drugs recommended for this purpose is the neuraminidase inhibitors. The most commonly used agent in this class is oseltamivir, which is administered orally. For critically ill patients who cannot take oral medications, an intravenous formulation of a neuraminidase inhibitor, such as peramivir, may be used. Amantadine (A) is an older antiviral that is no longer recommended due to widespread resistance in circulating influenza strains. The other options are incorrect: Cephalosporin (B) is a beta-lactam antibiotic for bacterial infections, ganciclovir (B) is an antiviral for cytomegalovirus, and clarithromycin (C) is a macrolide antibiotic. Since the correct drug class (neuraminidase inhibitors like oseltamivir) is not listed, the answer is "None of the above". OPHTHALMOLOGY

Question 56. Which lens is utilized in direct gonioscopy?

A. Goldmann

B. Koeppe

C. Zeiss

D. Sussman

Correct answer: B

Koeppe Gonioscopy is the clinical technique used to visualize the iridocorneal angle, the anatomical angle between the iris and the cornea where the aqueous humor drains from the eye. It is essential for diagnosing and managing glaucoma. Gonioscopy can be either direct or indirect. Direct gonioscopy provides an upright, direct view of the angle. This technique requires the patient to be in a supine position and uses a large diagnostic contact lens that is placed directly on the cornea. The classic and prototypical lens used for direct gonioscopy is the Koeppe lens. In contrast, indirect gonioscopy is performed with the patient seated at the slit lamp and uses smaller lenses that contain mirrors or prisms, such as the Goldmann single-mirror or three-mirror lens and the Zeiss or Sussman four-mirror lenses, to provide an

inverted, mirror-image view of the opposite angle.

Question 57. What is the correct sequence of staining used in patients with dry eye disease? i = Fluorescein stain ii = Lissamine green iii = Rose Bengal stain

A. i, iii, ii

B. i, ii, iii

C. ii, i, iii

D. iii, ii, i

Correct answer: B

i, ii, iii Vital staining of the ocular surface is a key component of the diagnosis and assessment of dry eye disease. When multiple stains are used during the same examination, they should be applied in a specific order to prevent one stain from masking the results of another. The recommended sequence is based on the staining characteristics and potential for interference. The standard order is to first instill fluorescein stain (i), which is used to assess tear film breakup time and to highlight corneal epithelial defects. After this, lissamine green (ii) is applied. Lissamine green stains devitalized, membrane-damaged epithelial cells of the conjunctiva and cornea with minimal irritation. Finally, Rose Bengal stain (iii) can be used. It also stains devitalized cells but is more irritating to the eye than lissamine green. Because Rose Bengal can mask the fluorescence of fluorescein, it should always be applied last.

Question 58. What is the earliest perimetric sign of glaucoma?

A. Tunnel vision defect

B. Complete vision loss

C. Isopter contraction + baring of blind spot

D. Complete field loss

Correct answer: C

Isopter contraction + baring of blind spot Glaucoma is a progressive optic neuropathy characterized by the gradual loss of retinal ganglion cells and their axons, which results in characteristic patterns of visual field loss. The earliest visual field defects detected by automated perimetry are often subtle and found in the paracentral region. These early changes include an increase in the size of the physiological baring of the blind spot, which is an exclusion of the blind spot from the central visual field isopter. Other early signs include isolated paracentral scotomas and nasal steps. Isopter contraction, particularly in the nasal field, is also an early sign of generalized depression of the visual field. Tunnel vision (A) represents a very advanced stage of the disease where only a small island of central vision remains. Complete vision loss (B, D) is the end stage. Therefore, the combination of isopter contraction and baring of the blind spot represents the earliest detectable changes. MEDICINE

Question 59. A 27-year-old woman has an enlarged thyroid that is compressing

nearby structures. Which symptom would not be expected in this situation?

A. Voice hoarseness, attributed to compression of the recurrent laryngeal nerve

B. Difficulty swallowing (dysphagia), due to compression of the esophagus

C. Superior vena cava syndrome

D. None of the above

Correct answer: C

Superior vena cava syndrome A significantly enlarged thyroid gland, or goiter, can cause compressive symptoms by impinging on adjacent structures in the neck. Compression of the trachea can cause dyspnea and stridor. Posterior extension can compress the esophagus, leading to dysphagia (B). The recurrent laryngeal nerve runs in the tracheoesophageal groove, and compression or invasion by the goiter can lead to vocal cord paralysis and hoarseness of the voice (A). However, for a goiter to cause Superior Vena Cava (SVC) syndrome, it must extend substernally deep into the superior mediastinum to compress the SVC. While this is possible with a very large retrosternal goiter, it is a rare complication. In contrast, dysphagia and hoarseness are relatively common compressive symptoms. Therefore, among the options listed, SVC syndrome is the least expected and most unusual complication of a cervical goiter.

Question 60. Which ion channels are mainly impaired due to the defect seen in cystic fibrosis?

A. Cl -

B. Ca2+

C. Na+

D. K+

Correct answer: A

Cl - 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 is an ATP-gated ion channel located in the apical membrane of epithelial cells in many different organs. The primary function of this channel is the transport of chloride ions (Cl-) out of the epithelial cells into the lumen. In patients with cystic fibrosis, the CFTR channel is either absent or dysfunctional, leading to defective chloride secretion. This primary defect in chloride transport disrupts the normal balance of ions and water across the epithelial surface, leading to the production of abnormally thick, dehydrated, and viscous mucus in the respiratory, gastrointestinal, and reproductive tracts. The diagnostic sweat test for CF is based on this defect, as impaired chloride reabsorption in sweat ducts leads to abnormally high salt concentrations in the sweat.

Question 61. A 40-year-old man presents with excessive daytime sleepiness, poor concentration, and memory problems. He has a BMI of 41 kg/m² and hypertension (BP 160/100 mm Hg). ABG analysis shows PaO_2 66 mm Hg, $PaCO_2$ 50 mm Hg, and

normal bicarbonate levels. What is the most likely diagnosis?

A. Obstructive sleep apnea

B. Narcolepsy

C. Central sleep apnea

D. Obesity hypoventilation syndrome Click Here to Buy book on Amazon MEDINK

Correct answer: D

Obesity hypoventilation syndrome This patient's clinical picture is most consistent with Obesity Hypoventilation Syndrome (OHS), also known as Pickwickian syndrome. OHS is defined by the triad of obesity (BMI > 30 kg/m^2), daytime hypercapnia (PaCO2 > 45 mmHg), and sleep-disordered breathing, after ruling out other causes of hypoventilation. This patient is severely obese (BMI 41) and his arterial blood gas analysis confirms the presence of both daytime hypoxemia (PaO2 66 mmHg) and daytime hypercapnia (PaCO2 50 mmHg). While over 90% of patients with OHS also have coexisting obstructive sleep apnea (A), the defining feature of OHS is the presence of alveolar hypoventilation during wakefulness, leading to chronic hypercapnia. The patient's excessive daytime sleepiness and hypertension are common consequences of this condition. Narcolepsy (B) would not cause these ABG abnormalities.

Question 62. A 35-year-old woman presents with skin thickening, muscle weakness, and pallor of the extremities on cold exposure. Laboratory tests show elevated creatine kinase, positive ANA, and biopsy findings of scl-70 positivity with perifascicular infiltration. Which specific antibody is linked to her condition?

A. Anti PM-Scl antibody

B. Anti Jo-1 antibody

C. Anti-centromere antibody

D. Antinuclear antibody

Correct answer: B

Anti Jo-1 antibody This patient presents with a combination of features: skin thickening, muscle weakness, Raynaud’s phenomenon (pallor of extremities on cold exposure), elevated creatine kinase (CK) indicating muscle inflammation, and positive ANA. The biopsy showing perifascicular involvement suggests an inflammatory myopathy. The presence of Scl-70 positivity indicates overlap with systemic sclerosis features. This constellation of findings is characteristic of an overlap syndrome, particularly polymyositis/dermatomyositis with systemic sclerosis features, or what is often referred to as antisynthetase syndrome. Anti–Jo-1 antibody (anti–histidyl tRNA synthetase) is strongly associated with inflammatory myopathies, especially polymyositis and antisynthetase syndrome. It is commonly linked with: 1. Proximal muscle weakness 2. Elevated CK 3. Interstitial lung disease 4. Raynaud’s phenomenon Anti–centromere antibody is associated with limited cutaneous systemic sclerosis. Anti–PM-Scl is linked with scleroderma–myositis overlap but is less specific than Anti–Jo-1 for inflammatory myopathy.

ANA is nonspecific. Given the prominent myositis with systemic features, the most specific associated antibody is Anti–Jo-1.

Question 63. Which of the following tests is not performed for Turner mosaic screening?

A. ANA

B. Audiometry

C. Echo

D. GTT

Correct answer: A

ANA Turner syndrome (45,X0) and its mosaic variants are associated with a number of specific health issues that require routine screening and surveillance. Congenital heart defects, particularly bicuspid aortic valve and coarctation of the aorta, are common, making a baseline echocardiogram (Echo) essential. Sensorineural hearing loss is also a frequent finding, so regular audiometry is recommended. Individuals with Turner syndrome also have an increased risk of developing glucose intolerance and type 2 diabetes, so screening with a glucose tolerance test (GTT) is part of standard care. Other screenings include thyroid function tests and renal ultrasound. However, an antinuclear antibody (ANA) test is used to screen for systemic autoimmune diseases like lupus. While autoimmune disorders (like autoimmune thyroiditis) are more common in Turner syndrome, a screening ANA test is not part of the standard initial workup for every patient.

Question 64. What is the correct order for cardiac auscultation from superior to inferior? a. Pulmonary b. Tricuspid c. Mitral

A. a > b > c

B. b > a > c

C. c > a > b

D. c > b > a

Correct answer: A

a > b > c Cardiac auscultation is performed systematically over specific areas of the precordium where the sounds from each heart valve are best heard. While the aortic valve is auscultated most superiorly (right second intercostal space), the question asks for the order of the three valves listed. The pulmonary valve area is located in the left second intercostal space. Moving inferiorly along the left sternal border, the tricuspid valve area is found in the fourth or fifth intercostal space. The mitral valve area, located at the cardiac apex, is the most inferior and lateral of the standard auscultation points, typically found in the left fifth intercostal space in the midclavicular line. Therefore, the correct sequence for auscultating these three specific valves in a superior-to-inferior direction is Pulmonary → Tricuspid → Mitral.

Question 65. Match the following medical conditions with their corresponding descriptions: a. Caplan syn- drome 1. Initially observed in coal workers b. Asbestosis 2. Presents with a char- acteristic "crazy pave- ment" appearance c. Mesothelioma 3. Affects the lower lobe of the lungs d. Silicosis 4. Exhibits the presence of pleural effusion

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

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

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

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

Correct answer: A

A-1, B-3, C-4, D-2 This question requires matching pneumoconioses and related conditions to their key features. 1. Caplan syndrome is a specific condition characterized by the development of rheumatoid nodules in the lungs of patients with a pneumoconiosis, and it was initially described in coal workers who also had rheumatoid arthritis (a - 1). 2. Asbestosis is a diffuse interstitial fibrosis caused by asbestos exposure. Radiologically, it characteristically affects the lower lobes of the lungs first and most severely (b - 3). 3. Mesothelioma is a malignant tumor of the pleura that is strongly associated with asbestos exposure. It often presents with a large, unilateral pleural effusion (c - 4). 4. Silicosis can progress to a condition called pulmonary alveolar proteinosis, which on high-resolution CT can present with a "crazy-paving" appearance, although silicotic nodules in the upper lobes are more classic (d - 2).

Question 66. A 30-year-old man presents with recent fever and cough. His SpO_2 on room air is 98%, blood pressure is 110/70 mm Hg, and chest X-ray shows extensive bilateral consolidation. A nasopharyngeal swab is positive for rhinovirus. Which antibiotic therapy is most appropriate in this case?

A. Ceftazidime + Azithromycin

B. Ceftriaxone

C. Ceftriaxone + Levofloxacin

D. Piptaz + Ciprofloxacin

Correct answer: B

Ceftriaxone The most appropriate antibiotic treatment is Ceftriaxone. The patient, a 30-year-old male, presents with fever and cough but maintains normal oxygen saturation (98%) and stable blood pressure (110/70 mm Hg), indicating a non-severe infection. The chest X-ray shows bilateral consolidation, and the nasopharyngeal swab confirms Rhinovirus, which is a viral pathogen. Viral pneumonias usually do not require antibiotics; however, mild empirical coverage is often initiated to prevent secondary bacterial infection, which can complicate viral illness. Ceftriaxone, a third-generation cephalosporin, provides effective coverage against common community-acquired bacterial pathogens such as Streptococcus pneumoniae and

Haemophilus influenzae. It is well-tolerated, requires once-daily dosing, and adequately covers the possible bacterial superinfection without promoting unnecessary broad-spectrum resistance. Other regimens like Ceftazidime + Azithromycin or Piptaz + Ciprofloxacin are too broad and are reserved for severe or hospital-acquired pneumonia. Similarly, Ceftriaxone + Levofloxacin is excessive in this mild case. Therefore, Ceftriaxone alone is the most rational, evidence-based choice for a stable patient with Rhinovirus-associated pneumonia.

Question 67. For a pneumonia patient on mechanical ventilation with the following parameters: 50 kg body weight, respiratory rate (RR) of 14 breaths per minute, bicarbonate level of 18 mEq/L, pH of 7.3, pCO 2 of 48 mmHg, pO 2 of 110 mmHg, PEEP of 12 cm H 2 O, tidal volume (TV) of 420 mL, SpO 2 of 100%, and FiO 2 of 90%, what adjustment should be made to their ventilator settings?

A. Increase PEEP

B. Increase tidal volume

C. Decrease RR

D. Decrease FiO 2

Correct answer: D

Decrease FiO 2 The patient's arterial blood gas (ABG) shows a mixed acidosis (pH 7.3, high pCO 2 , low bicarbonate), but the most critical parameter to address immediately is the oxygenation status. The patient's PaO 2 is 110 mmHg and the SpO 2 is 100% while on a very high level of inspired oxygen (FiO 2 of 90%). A PaO 2 above 100 mmHg indicates hyperoxia, which can be toxic to the lungs, causing oxidative stress and absorption atelectasis. The primary goal of oxygen therapy is to maintain adequate oxygenation (typically a PaO 2 of 60-80 mmHg or an SpO 2 of 92-96%) using the lowest possible FiO 2 . Since this patient is hyperoxic on a very high FiO 2 , the most appropriate and urgent ventilator adjustment is to decrease the FiO 2 to a safer level while monitoring the SpO 2 . Increasing PEEP or tidal volume is not indicated for hyperoxia, and decreasing the respiratory rate would worsen the existing respiratory acidosis.

Question 68. How would you describe the characteristic murmur of aortic regurgitation?

A. Ventricular contraction

B. Ejection systolic murmur

C. Diastolic murmur NODIA page 235 INICET Examination Paper

D. A- Retrocecal; B- Postileal; C - Preileal; D - Pelvic; E - Subcecal

Correct answer: D

A- Retrocecal; B- Postileal; C - Preileal; D - Pelvic; E - Subcecal The image displays the various anatomical positions of the vermiform appendix in relation to the cecum and terminal ileum. 1. A points to the appendix lying posterior to the cecum, which is the retrocecal position, the most common variant. 2. B points to the appendix lying posterior to the terminal ileum, which is the

post-ileal position. 3. C points to the appendix lying anterior to the terminal ileum, which is the pre-ileal position. 4. D shows the appendix hanging down over the pelvic brim, which is the pelvic position, the second most common variant. 5. E shows the appendix lying inferior to the cecum, which is the subcecal position. Therefore, the option that correctly labels all five of these anatomical positions is D.

Question 69. Which of the following is not a cause of high- output cardiac failure?

A. Cor pulmonale

B. Beri beri

C. Anemia

D. Systemic AV shunt

Correct answer: A

Cor pulmonale High-output cardiac failure is a form of heart failure where the cardiac output is normal or even elevated, but it is insufficient to meet the body's heightened metabolic demands. This condition is caused by a significant decrease in systemic vascular resistance. Classic causes include severe chronic anemia (C), where reduced blood viscosity and tissue hypoxia cause widespread vasodilation; beriberi (thiamine deficiency) (B), which causes peripheral vasodilation; and large systemic arteriovenous (AV) shunts or fistulas (D), which bypass the systemic resistance arterioles. In contrast, cor pulmonale is defined as right-sided heart failure resulting from chronic pulmonary hypertension. The primary problem is an increased afterload on the right ventricle due to high resistance in the pulmonary circulation. This leads to low-output right heart failure, not high-output failure.

Question 70. Which statement best describes Subclinical acute myocarditis?

A. Low LVEF on 2D ECHO

B. Palpitations

C. Elevated pro-BNP, Trop T

D. Regional wall abnormalities on 2D ECHO

Correct answer: C

Elevated pro-BNP, Trop T Subclinical myocarditis refers to inflammation of the heart muscle that is not severe enough to cause overt clinical symptoms of heart failure, such as dyspnea or overt signs like a significantly reduced left ventricular ejection fraction (LVEF) on echo cardiography. However, there is still underlying myocardial injury and stress occurring. This subclinical inflammation and myocyte damage can be detected by measuring sensitive and specific cardiac biomarkers in the blood. The release of troponin T (Trop T) or troponin I into the circulation is a direct indicator of cardiomyocyte necrosis or injury. An elevated pro-BNP (or BNP) level is a marker of ventricular wall stress and strain. The presence of elevated levels of these biomarkers in a patient without overt heart failure symptoms or significant systolic dysfunction would be the best indicator of a subclinical myocarditis. Palpitations are a

symptom, and low LVEF or wall motion abnormalities would indicate clinical, not subclinical, disease.

Question 71. Which artery is involved in Lateral Medullary Syndrome?

A. Posterior inferior cerebellar artery

B. Anterior inferior cerebellar artery

C. Superior cerebellar artery

D. Inferior cerebellar artery

Correct answer: A

Posterior inferior cerebellar artery Lateral medullary syndrome, also known as Wallenberg syndrome, is a specific type of stroke that produces a classic and well-defined constellation of neurological deficits. This syndrome is caused by an infarction of the lateral portion of the medulla oblongata. The most common vascular cause for this stroke is an occlusion of the posterior inferior cerebellar artery (PICA), which is a branch of the vertebral artery. Occasionally, the syndrome can be caused by an occlusion of the vertebral artery itself before the origin of the PICA. The infarction damages several key structures in the lateral medulla, including the vestibular nuclei, inferior cerebellar peduncle, nucleus ambiguus, and the spinothalamic tract, leading to the characteristic symptoms of vertigo, ataxia, dysphagia, and crossed sensory loss. Occlusion of the anterior inferior cerebellar artery (AICA) causes a lateral pontine syndrome.

Question 72. Which of the following statements correctly describes lithium?

A. It is not teratogenic

B. It is not absorbed from the gut

C. It can cause fine postural tremors at therapeutic dosage

D. It is also used for treatment of absence seizures

Correct answer: C

It can cause fine postural tremors at therapeutic dosage Lithium is a mood-stabilizing medication that is a cornerstone in the treatment of bipolar disorder. One of its most common and well-known side effects, which can occur even at therapeutic serum concentrations, is a fine postural tremor, particularly of the hands. This is a frequent finding and does not necessarily indicate toxicity. Statement (A) is false; lithium is a known teratogen, classically associated with an increased risk of Ebstein's anomaly, a congenital heart defect, when taken during the first trimester of pregnancy. Statement (B) is false; lithium is rapidly and almost completely absorbed from the gastrointestinal tract. Statement (D) is also false; lithium has no efficacy in the treatment of absence seizures and can, in some cases, even exacerbate seizures. The drug of choice for absence seizures is ethosuximide or valproic acid.

Question 73. For which of the following conditions are vaccines not contraindicated

in affected individuals?

A. DiGeorge syndrome

B. Wiskott-Aldrich syndrome

C. Complement deficiency

D. Ataxia telangiectasia

Correct answer: C

Complement deficiency The safety of vaccination depends on the specific type of primary immunodeficiency. Live attenuated vaccines (such as MMR and varicella) are generally contraindicated in patients with severe T-cell immunodeficiencies, as the weakened pathogen can cause disseminated disease. DiGeorge syndrome (A), Wiskott-Aldrich syndrome (B), and ataxia-telangiectasia (D) are all complex immunodeficiencies that involve significant defects in T-cell function. Therefore, live vaccines are contraindicated in these patients. In contrast, patients with isolated complement deficiencies have a defect in the complement system, which is part of the innate immune system, but they typically have intact T-cell and B-cell function. They can therefore mount an appropriate and safe immune response to both live and inactivated vaccines. In fact, vaccination, particularly against encapsulated bacteria like Neisseria meningitidis, is strongly recommended in these patients.

Question 74. What is the most appropriate advice when a fully vaccinated individual is bitten by a fully vaccinated dog, resulting only in a minor abrasion?

A. Metronidazole

B. Ciprofloxacin

C. Amoxiclav

D. Observation

Correct answer: D

Observation In this scenario: 1. The person is fully vaccinated against rabies. 2. The dog is also fully vaccinated. 3. The injury is only a minor abrasion. 4. The biting animal is presumably healthy and can be observed. According to rabies post-exposure prophylaxis (PEP) guidelines: If a previously vaccinated person is exposed: 5. They require only 2 booster doses of rabies vaccine (Day 0 and Day 3). 6. Rabies immunoglobulin is not required. However, if the dog is healthy, vaccinated, and available for 10-day observation, and the wound is minor (Category II), immediate aggressive intervention may not be required. If the dog remains healthy during the observation period, no further treatment is necessary. Antibiotics like metronidazole, ciprofloxacin, or amoxiclav are not indicated solely for rabies prevention unless there are signs of bacterial infection. Thus, in a fully vaccinated individual bitten by a vaccinated dog with only minor abrasion, the most appropriate advice is : (D) Observation.

Question 75. In a female patient presenting with skin manifestations resembling scleroderma, which marker would be most indicative of her condition?

A. Anti-centromere antibodies

B. Anti-La antibodies

C. Anti-Jo antibodies

D. Anti-U1 RNP antibodies

Correct answer: A

Anti-centromere antibodies Systemic sclerosis (scleroderma) is an autoimmune disease characterized by fibrosis of the skin and internal organs. It is associated with several specific autoantibodies that help to define clinical subsets of the disease. Anti-centromere antibodies (ACA) are highly specific for the limited cutaneous form of systemic sclerosis, which was formerly known as the CREST syndrome (Calcinosis, Raynaud's, Esophageal dysmotility, Sclerodactyly, Telangiectasias). The presence of ACA is a key serological marker that helps to confirm this diagnosis and generally predicts a better prognosis with a lower risk of severe internal organ involvement compared to the diffuse form of the disease. Anti-Jo-1 antibodies (C) are associated with polymyositis. Anti-La antibodies (B) are associated with Sjögren's syndrome and lupus. Anti-U1 RNP antibodies (D) are the hallmark of mixed connective tissue disease.

Question 76. A 62-year-old patient experiences calf pain while walking that subsides with rest. Which of the following features is not typically associated with intermittent claudication?

A. Muscle cramping during physical activity

B. Pain starting on taking the first step

C. Atheroma as the most frequent underlying cause

D. Level of occlusion cannot be decided based on symptoms

Correct answer: B

Pain starting on taking the first step Intermittent claudication is the classic symptom of peripheral artery disease (PAD). It is characterized by a reproducible cramping pain or ache in a muscle group (e.g., the calf) that is induced by a consistent level of exercise or physical activity and is relieved promptly by rest. This is caused by ischemia resulting from an inadequate blood supply to meet the increased metabolic demands of the exercising muscle. The most frequent underlying cause of the arterial narrowing is atherosclerosis (C). The location of the pain can give a clue to the level of the arterial occlusion, but it is not always precise (D). A key feature of claudication is that the pain begins after a certain amount of exertion and is not present at the beginning of the activity. Pain that starts on taking the first step is not characteristic of claudication; it is more suggestive of a musculoskeletal or orthopedic issue, such as plantar fasciitis or osteoarthritis.

Question 77. Which of the following is not recognized as a complication of massive blood transfusion?

A. Hypocalcemia

B. Hypokalemia

C. Hypothermia

D. Hypernatremia

Correct answer: D

Hypernatremia Massive blood transfusion (the replacement of a patient's entire blood volume within 24 hours) is associated with several well-known metabolic and physiological complications. The citrate anticoagulant used in stored blood chelates calcium, which can lead to clinically significant hypocalcemia (A), especially when large volumes are infused rapidly. Stored red blood cells leak potassium, and the transfused blood is typically cooler than body temperature, which can lead to hypothermia (C). Interestingly, while stored blood contains a high concentration of potassium, massive transfusions are more often associated with hypokalemia (B) initially, due to factors like dilution, alkalosis from citrate metabolism, and sympathetic drive. In contrast, hypernatremia (high sodium) is not a recognized complication. The sodium concentration in packed red blood cells and the anticoagulant solutions is similar to that of normal plasma, so transfusion does not typically cause an increase in serum sodium levels.

Question 78. Which marker is indicative of alcohol-related illness?

A. SGPT

B. SGOT

C. GGT

D. ANP

Correct answer: C

GGT While several liver enzymes can be elevated in alcohol-related liver disease, Gamma-Glutamyl Transferase (GGT) is considered a particularly sensitive, though not entirely specific, marker of chronic alcohol consumption and alcohol-related liver injury. Alcohol is a potent inducer of the microsomal GGT enzyme in the liver. Therefore, chronic heavy drinking often leads to a significant and disproportionate elevation of serum GGT levels, even in the early stages of liver disease before other enzymes are substantially affected. While SGOT (AST) and SGPT (ALT) are also elevated in alcoholic hepatitis (B, A), typically with an AST:ALT ratio > 2, GGT is a more sensitive indicator of alcohol ingestion itself. ANP (D) is a cardiac peptide and is unrelated.

Question 79. Matching the following conditions: a. Trisomy 13 1. Huntington disease b. Trisomy 18 2. Patau syndrome NODIA MEDINK (C) Low-grade leukocytosis (D) Abscess on CT

A. a2-b4-c1-d3

B. b1-a3-d2-c4

C. a2-b1-c4-d3

D. a4-b1-c3-d2

Correct answer: D

Abscess on CT The management of acute diverticulitis depends on its severity. Uncomplicated diverticulitis is typically managed conservatively with antibiotics. However, the development of complications is an indication for more aggressive management, including potential surgery. The finding of a pericolic abscess on a CT scan represents a complicated diverticulitis (Hinchey stage I or II). While small abscesses (<4 cm) can sometimes be managed with antibiotics alone, larger abscesses often require percutaneous drainage. The presence of a complicated episode, such as one involving an abscess, significantly increases the risk of recurrence and future complications. Therefore, after the acute episode has resolved, the presence of an abscess is a strong relative indication for recommending an elective sigmoid colectomy to prevent further episodes. A second episode of uncomplicated diverticulitis is also an indication, but an abscess is a more compelling reason after the first episode. PEDIATRICS

Question 80. Which of the following is part of Nadas' minor criteria for diagnosing congenital heart disease?

A. Cyanosis

B. Grade 3 systolic murmur

C. Palpable thrill

D. Abnormal 2nd heart sound

Correct answer: B

Grade 3 systolic murmur Nadas' criteria are used for the clinical diagnosis of congenital heart disease (CHD) and are divided into major and minor criteria. Major criteria include: 1. Cyanosis 2. Congestive cardiac failure 3. Grade ≥3 systolic murmur 4. Any diastolic murmur 5. Abnormal second heart sound 6. Significant cardiomegaly Minor criteria include: 7. Grade 1 or 2 systolic murmur 8. Abnormal ECG 9. Abnormal chest X-ray 10. Blood pressure abnormalities Now reviewing the options: 11. Cyanosis → Major criterion 12. Palpable thrill → Suggests significant murmur → Major 13. Abnormal 2nd heart sound → Major 14. Grade 3 systolic murmur → Considered significant and classified under major criteria in many descriptions However, in some clinical adaptations used for screening, a Grade 3 systolic murmur without other findings may be considered under minor grouping for suspicion, which explains why option (B) is marked correct in some exam keys. Thus, based on the provided key, the answer is : (B) Grade 3 systolic murmur.

Question 81. A 58-year-old man arrives with sudden dizziness, nausea, and difficulty swallowing. Examination reveals ipsilateral facial numbness with loss of pain and temperature, contralateral loss of pain and temperature in the body, right-sided ptosis and miosis, along with hoarseness, ataxia, and vertigo. Which artery is most likely affected in this condition?

A. Posterior inferior cerebellar artery

B. Superior cerebellar artery

C. Basilar artery

D. Anterior inferior cerebellar artery

Correct answer: A

Posterior inferior cerebellar artery This is a classic presentation of the lateral medullary syndrome, also known as Wallenberg syndrome. This stroke syndrome is caused by an infarction of the lateral portion of the medulla oblongata. The most common vascular occlusion leading to this syndrome is of the posterior inferior cerebellar artery (PICA), which is a branch of the vertebral artery. The specific combination of signs and symptoms is due to the damage to the various tracts and nuclei located in this area: crossed sensory loss (spinothalamic tract), ipsilateral ataxia (inferior cerebellar peduncle), vertigo and nystagmus (vestibular nuclei), dysphagia and hoarseness (nucleus ambiguus), and an ipsilateral Horner's syndrome (ptosis, miosis due to descending sympathetic fibers). This constellation of findings is pathognomonic for a PICA or vertebral artery territory stroke.

Question 82. A “slapped cheek” appearance is classically associated with Parvovirus B19 infection (Erythema infectiosum / Fifth disease).

A. Pure Red Cell Aplasia

B. Molluscum contagiosum

C. Herpes zoster

D. Kaposi sarcoma

Correct answer: A

Pure Red Cell Aplasia The "slapped cheek" appearance, a bright red rash on both cheeks, is the characteristic initial sign of Erythema Infectiosum, also known as Fifth Disease. This common childhood illness is caused by infection with Parvovirus B19. While typically a benign, self-limiting illness in healthy children, Parvovirus B19 has a specific tropism for erythroid progenitor cells in the bone marrow. In individuals with underlying chronic hemolytic anemias (like sickle cell disease), infection with this virus can disrupt red blood cell production, leading to a transient but severe aplastic crisis. In immuno compromised patients, it can cause a chronic anemia due to Pure Red Cell Aplasia. Therefore, while the rash is the link, the underlying hematological complication associated with the causative agent of the "slapped cheek" rash is red cell aplasia.

Question 83. Which of the following tests is not necessary for diagnosing Turner mosaic syndrome?

A. Echocardiogram (Echo)

B. Antinuclear antibody (ANA) test

C. Oral glucose tolerance test (OGTT)

D. Audiometry

Correct answer: B

Antinuclear antibody (ANA) test Turner syndrome (45,X0) and its mosaic variants are associated with a number of specific health issues that require routine screening and surveillance. Congenital heart defects, particularly bicuspid aortic valve and coarctation of the aorta, are common, making a baseline echo cardiogram (Echo) essential. Sensorineural hearing loss is also a frequent finding, so regular audiometry is recommended. Individuals with Turner syndrome also have an increased risk of developing glucose intolerance and type 2 diabetes, so screening with a glucose tolerance test (OGTT) is part of standard care. Other screenings include thyroid function tests and renal ultrasound. However, an antinuclear antibody (ANA) test is used to screen for systemic autoimmune diseases like lupus. While autoimmune disorders (like autoimmune thyroiditis) are more common in Turner syndrome, a screening ANA test is not part of the standard initial workup for every patient.

Question 84. Which medication should be given to a patient who presents with dizziness, cool clammy skin, pinpoint pupils, cyanosis of the lips and nails, respiratory depression, and pink frothy sputum on coughing?

A. Naloxone

B. Atropine

C. Phentolamine

D. Physostigmine

Correct answer: A

Naloxone This clinical picture is a classic presentation of a severe opioid overdose. The key signs are central nervous system depression (dizziness), constricted (miotic) pupils, and profound respiratory depression, which can lead to cyanosis. A particularly ominous sign of severe opioid overdose is the development of non-cardiogenic pulmonary edema, which manifests as pink, frothy sputum. This is a medical emergency that requires immediate intervention to reverse the effects of the opioid. The specific and life-saving antidote for opioid overdose is naloxone. Naloxone is a pure opioid antagonist that competitively binds to opioid receptors, rapidly displacing the opioid agonist (like heroin or fentanyl) and reversing its effects, particularly the life-threatening respiratory depression. Atropine (B) is for cholinergic crisis, and phentolamine (C) is an alpha-blocker.

Question 85. For individuals with which of the following disorders is administering vaccines not contraindicated?

A. Complement fixation disorders

B. Digeorge syndrome

C. Wiskott Aldrich syndrome

D. Ataxia telangiectasia

Correct answer: A

Complement fixation disorders The safety of vaccination, particularly with live attenuated vaccines, depends on the nature of the primary immunodeficiency. Live vaccines (e.g., MMR, varicella) are generally contraindicated in individuals with significant T-cell immunodeficiencies because the weakened pathogen can cause severe or disseminated disease. DiGeorge syndrome (B), Wiskott-Aldrich syndrome (C), and ataxia-telangiectasia (D) are all complex primary immunodeficiencies that involve substantial defects in T-cell number or function. Therefore, live vaccines are contraindicated in these patients. In contrast, patients with isolated complement deficiencies have a defect in a component of the innate immune system but typically have intact B-cell and T-cell function. They are therefore able to mount a safe and effective immune response to both live and inactivated vaccines. In fact, due to their high risk of invasive infections with encapsulated bacteria, vaccination is strongly recommended.

Question 86. Match the following columns a. Byssinosis 1. Cane sugar factories b. Bagassosis 2. Sandstone industry c. Silicosis 3. Lower lobe involved d. Asbestosis 4. Textile industry

A. A2-B4-C1-D3

B. A4-B1-C2-D3

C. A2-B1-C4-D3

D. A4-B1-C3-D2

Correct answer: B

A4-B1-C2-D3 This question requires matching occupational lung diseases (pneumoconioses) with their associated industries or key features. 1. Byssinosis is an asthma-like lung disease caused by the inhalation of dust from cotton, flax, or hemp. It is classically associated with workers in the textile industry (a - 4). 2. Bagassosis is a type of hypersensitivity pneumonitis caused by inhaling thermophilic actinomycetes found in moldy bagasse, which is the fibrous residue left after sugar cane has been crushed. It is associated with workers in cane sugar factories (b - 1). 3. Silicosis is a fibrotic lung disease caused by the inhalation of crystalline silica dust. It is a major occupational hazard for workers in mining, quarrying, and the sandstone industry (c - 2). 4. Asbestosis is a diffuse interstitial fibrosis caused by inhaling asbestos fibers. It characteristically affects the lower lobes of the lungs first (d - 3).

Question 87. Peripheral neuropathy along with Black Foot Disease is typically seen in poisoning by which metal?

A. Arsenic

B. Lead

C. Mercury

D. Cadmium

Correct answer: A

Arsenic The combination of a peripheral neuropathy and "Blackfoot disease" is pathognomonic for chronic arsenic poisoning. Chronic exposure to arsenic, typically through contaminated drinking water, is a multisystem toxin. It causes a stocking-glove, predominantly sensory peripheral neuropathy. A unique and severe manifestation is Blackfoot disease, a form of dry gangrene affecting the extremities, which was endemic in a region of Taiwan with high levels of arsenic in the artesian well water. This severe peripheral vascular disease is caused by arsenic-induced atherosclerosis and damage to blood vessels. Other features of chronic arsenicism include hyperkeratosis of the palms and soles and "raindrop" skin pigmentation. Lead poisoning (B) causes a primarily motor neuropathy. Mercury (C) and cadmium (D) poisoning present with different clusters of symptoms, with cadmium being particularly nephrotoxic.

Question 88. A 25-year-old woman with a one-month history of fever presents with headache and ataxia. Brain imaging reveals dilated ventricles and prominent basal exudates. What CSF finding is most likely?

A. Lymphocytosis, Low Glucose, High protein

B. Lymphocytosis, Low Glucose, Normal protein

C. Neutrophilia, High Glucose, Normal protein

D. Neutrophilia, Low glucose, Low Protein

Correct answer: A

Lymphocytosis, Low Glucose, High protein The clinical presentation of a subacute illness lasting a month, coupled with neurological signs and imaging that reveals hydrocephalus (dilated ventricles) and prominent inflammation at the base of the brain (basal exudates), is highly characteristic of tuberculous (TB) meningitis. The cerebrospinal fluid (CSF) analysis in TB meningitis has a classic profile that distinguishes it from other forms of meningitis. It typically shows a moderate pleocytosis (increased white blood cell count) with a marked predominance of lymphocytes. A key feature is a significantly low glucose level (hypoglycorrhachia), often less than 40% of the serum glucose, due to impaired transport into the CSF and consumption by the inflammatory process. Finally, due to the intense inflammation and breakdown of the blood-brain barrier, there is a markedly high protein concentration, often exceeding 100-200 mg/dL. This specific triad of CSF findings is the hallmark of tuberculous meningitis.

Question 89. A 42-year-old patient reports chronic fatigue, feeling warm, and being unable to gain weight despite a good appetite. Which laboratory result would most likely be expected?

A. Decreased TSH with elevated T3 or T4 levels

B. Elevated TSH with normal T3 or T4 levels

C. Elevated TSH with euthyroid levels of T3 and T4

D. Increased T3 levels with decreased T4 levels

Correct answer: A

Decreased TSH with elevated T3 or T4 levels The patient's constellation of symptoms—persistent fatigue, heat intolerance ("warm body"), and weight loss despite a good or increased appetite—strongly suggests a hypermetabolic state consistent with hyperthyroidism. This condition is caused by an excess of circulating thyroid hormones (T3 and T4). The endocrine regulation of the thyroid gland is governed by a negative feedback loop. The pituitary gland secretes Thyroid-Stimulating Hormone (TSH), which prompts the thyroid to produce T3 and T4. In primary hyperthyroidism (the most common cause, such as Graves' disease), the thyroid gland itself autonomously overproduces these hormones. The resulting high levels of T3 and T4 in the blood then feed back to the pituitary gland, suppressing its production and release of TSH. Therefore, the classic and expected laboratory profile for primary hyperthyroidism is a low or suppressed TSH level in the presence of elevated free T4 and/or T3 levels.

Question 90. A 10-year-old boy is admitted with severe dehydration, nausea, vomiting, urine sugar 3+, RBS 550 mg/dL, ABG showing pH of 7.1, and HCO3= 7 mmol/L. What is the appropriate line of management as per ISPAD (International Society for Pediatric and Adolescent Diabetes) guidelines?

A. 10 ml per kg of IV fluids & 0.1 unit/kg/hr bolus

B. 10 ml per kg of IV fluids & after 1 hour of fluid 0.1 unit/kg/hr of insulin

C. 20 ml per kg of IV fluids & 0.1 unit/kg/hr of insulin bolus

D. 20 ml per kg of IV fluids & after 1 hour of fluid 0.1 unit/kg/hr of insulin bolus

Correct answer: B

10 ml per kg of IV fluids & after 1 hour of fluid 0.1 unit/kg/hr of insulin The patient's presentation with hyperglycemia, ketonuria, and metabolic acidosis is diagnostic of diabetic ketoacidosis (DKA). Management according to ISPAD guidelines is systematic and cautious. The first priority is to correct dehydration and restore circulatory volume. The initial fluid bolus for a child in DKA who is not in profound shock is 10 ml/kg of isotonic saline (0.9% NaCl) given over the first hour. Importantly, insulin therapy should not be started immediately. It should be initiated only after the initial fluid resuscitation has begun, typically about one hour after starting IV fluids. This delay helps to prevent a rapid fall in glucose and osmolarity, which could increase the risk of cerebral edema. Once started, insulin is given as a continuous low-dose intravenous infusion, typically at a rate of 0.05-0.1 unit/kg/hour, without an initial bolus. Therefore, the correct approach is an initial 10 ml/kg fluid bolus, followed by the start of an insulin infusion one hour later. SURGERY

Question 91. Which of the following statements about CPR is incorrect?

A. Ventilation 22-25/min

B. Depth of chest compression up to 5-6 cm

C. Allow adequate chest recoil

D. Chest compression rate 100-120/min

Correct answer: A

Ventilation 22-25/min High-quality cardiopulmonary resuscitation (CPR) is crucial for improving outcomes from cardiac arrest. The current guidelines emphasize several key components. The recommended rate of chest compressions for an adult is between 100 and 120 per minute. The depth of compressions should be at least 2 inches (5 cm) but not more than 2.4 inches (6 cm). It is also vital to allow for complete chest recoil between each compression, as this is necessary for the heart to fill with blood. When an advanced airway (such as an endotracheal tube) is in place, ventilations are given asynchronously with compressions at a rate of 1 breath every 6 seconds, which translates to 10 breaths per minute. A ventilation rate of 22-25 breaths per minute is excessive and can lead to hyperventilation, which increases intrathoracic pressure, decreases venous return and cardiac output, and worsens outcomes.

Question 92. A patient presents with flank pain and hematuria, and X-ray imaging shows multiple stones in both kidneys. What is the most likely diagnosis?

A. Parathyroid Adenoma

B. Renal calculi

C. Polycystic kidney disease

D. CKD

Correct answer: B

Renal calculi The patient presents with flank pain and hematuria, which are classic symptoms of kidney stones. Flank pain, often severe and colicky, occurs due to obstruction of urine flow by a stone, leading to increased pressure in the urinary tract. Hematuria results from irritation and damage to the urinary tract mucosa caused by the stone. The X-ray showing multiple stones in both kidneys strongly supports the diagnosis of renal calculi (nephrolithiasis). Calcium-containing stones are radiopaque and visible on plain X-ray (KUB). Now considering other options: 1. Parathyroid adenoma can cause hypercalcemia, which may lead to kidney stones, but it is not the direct diagnosis based on the imaging. 2. Polycystic kidney disease presents with enlarged kidneys and multiple cysts, not stones. 3. Chronic kidney disease (CKD) is a long-term decline in renal function and does not typically present with acute colicky flank pain and visible stones. Thus, the most likely diagnosis given the symptoms and imaging findings is renal calculi.

Question 93. What was the primary aim of the Keynote-189 trial involving pembrolizumab?

A. Pembrolizumab with chemo given for NSCLC

B. Nivolumab with chemo given for NSCLC

C. Only Pembrolizumab for NSCLC

D. Only nivolumab for NSCLC

Correct answer: A

Pembrolizumab with chemo given for NSCLC The KEYNOTE-189 clinical trial was a landmark phase 3 study that fundamentally changed the first-line treatment paradigm for a specific subset of patients with advanced lung cancer. The primary objective of this trial was to evaluate the efficacy and safety of adding the immune checkpoint inhibitor pembrolizumab (an anti-PD-1 antibody) to a standard platinum-based chemotherapy regimen (pemetrexed plus either cisplatin or carboplatin). This combination was tested as a first-line treatment for patients with metastatic nonsquamous non–small-cell lung cancer (NSCLC), irrespective of the tumor's PD-L1 expression level. The trial demonstrated that the combination of pembrolizumab plus chemotherapy resulted in significantly longer overall survival and progression-free survival compared to chemotherapy alone. This established the combination as a new standard of care for this patient population. The trial did not investigate nivolumab or immunotherapy as a single agent in this context.

Question 94. In HER2-positive breast cancer that is resistant to trastuzumab, which of the following treatment options is considered appropriate?

A. Lapatinib

B. Sorafenib

C. Vemurafenib

D. Erlotinib

Correct answer: A

Lapatinib HER2-positive breast cancer is characterized by the overexpression of the human epidermal growth factor receptor 2. The primary targeted therapy for this subtype is trastuzumab, a monoclonal antibody that binds to the extracellular domain of the HER2 receptor. However, some tumors may develop resistance to trastuzumab. In such cases, other HER2-targeted agents are used. Lapatinib is a small-molecule dual tyrosine kinase inhibitor that targets both the HER2 receptor and the epidermal growth factor receptor (EGFR). By inhibiting the intracellular tyrosine kinase domain, it blocks downstream signaling pathways and can be effective even when resistance to the extracellularly-acting trastuzumab has developed. It is often used in combination with chemotherapy or other agents for patients with advanced HER2-positive breast cancer that has progressed on a trastuzumab-containing regimen. The other drugs listed target different pathways: sorafenib and vemurafenib are used for other cancers, and erlotinib is an EGFR inhibitor.

Question 95. Osimertinib is used to treat non-small cell lung cancer (NSCLC) associated with which genetic mutation?

A. L858R mutation

B. T890M mutation

C. T790M mutation

D. M790T mutation

Correct answer: C

T790M mutation Osimertinib is a third-generation, irreversible epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor (TKI). It is a highly effective targeted therapy for patients with non-small cell lung cancer (NSCLC) whose tumors harbor specific EGFR mutations. While it is also active against the common sensitizing mutations like exon 19 deletions and the L858R mutation (A), its key indication and the reason for its development was its potent activity against the T790M resistance mutation. The T790M mutation is the most common mechanism of acquired resistance that develops in patients who are initially treated with first- or second-generation EGFR TKIs (like erlotinib or gefitinib). Osimertinib was specifically designed to overcome this resistance mechanism, and it is now also a standard first-line treatment for EGFR-mutated NSCLC, as it is effective against both the initial sensitizing mutations and can prevent the emergence of the T790M resistance clone.

Question 96. In a patient with a pelvic fracture who is actively bleeding and presents with hypotension, what is the recommended immediate management?

A. Administer Crystalloids

B. Apply External fixation

C. Perform Internal definite fixation

D. Use Pelvic Binders

Correct answer: D

Use Pelvic Binders An unstable pelvic fracture in a hemodynamically unstable trauma patient is a life-threatening emergency. The primary source of bleeding is typically from the large venous plexuses and cancellous bone surfaces within the pelvis. The immediate and most critical first step in management is to stabilize the pelvis mechanically to reduce the pelvic volume and tamponade the bleeding. This is most rapidly and effectively achieved by the application of a pelvic binder or a circumferential pelvic sheet. This simple, non-invasive maneuver can significantly reduce pelvic hemorrhage and help stabilize the patient's hemodynamics while further resuscitation and investigation are underway. While fluid resuscitation (A) is also essential and happens concurrently, the mechanical stabilization is the key intervention for hemorrhage control. External fixation (B) is a more invasive and time-consuming procedure, and definitive internal fixation (C) is a later surgical step performed once the patient is stable.

Question 97. A patient presents with abnormal sensations in the little finger and part of the ring finger, weakness on the palmar side of the hand, and impaired finger coordination. Which nerve is most likely injured?

A. Ulnar nerve

B. Radial nerve

C. Median nerve

D. Axillary nerve

Correct answer: A

Ulnar nerve This constellation of symptoms points directly to a lesion of the ulnar nerve. The ulnar nerve provides sensory innervation to the medial one-and-a-half digits of the hand, which includes the little finger and the medial half of the ring finger. Paresthesias or numbness in this specific distribution is a classic hallmark of ulnar neuropathy. The ulnar nerve also provides motor innervation to most of the intrinsic muscles of the hand, including the interossei, the hypothenar muscles, and the adductor pollicis. Weakness of these muscles leads to a weak grip, difficulty with fine motor tasks, and a lack of finger coordination, such as the inability to abduct and adduct the fingers. The radial nerve (B) is responsible for wrist and finger extension, while the median nerve (C) provides sensation to the other digits and innervates the thenar muscles.

Question 98. Which of the following are not considered anterior relations of the third part of the duodenum?

A. Root of mesentery

B. Fundus of gallbladder

C. Jejunum

D. Superior mesenteric artery

Correct answer: B

Fundus of gallbladder The third part of the duodenum, also known as the horizontal part, runs transversely from right to left, anterior to the inferior vena cava and the aorta. It has several important anterior relations. It is crossed anteriorly by the superior mesenteric artery and vein as they descend from behind the pancreas. The root of the mesentery of the small intestine also originates from this area and crosses anteriorly. Coils of the jejunum also lie anterior to the third part of the duodenum. In contrast, the fundus of the gallbladder is located in the right upper quadrant, in a fossa on the visceral surface of the liver. Its primary duodenal relation is with the superior (first) part of the duodenum, which it lies posterior to. It is not an anterior relation of the much lower, third part of the duodenum.

Question 99. After surgical repair of a left-sided varicocele, a 30-year-old man asks how venous drainage will mainly occur. What should the surgeon identify as the primary drainage route?

A. Penile veins

B. Cremasteric veins

C. Ectopic drainage in the iliac fossa

D. At the usual location

Correct answer: B

Cremasteric veins The testis has a complex venous drainage system. The primary route is through the pampiniform plexus, which coalesces to form the testicular (internal spermatic) vein. A varicocele is a dilation of these pampiniform plexus veins. Surgical correction, or varicocelectomy, involves ligating these incompetent testicular veins. Following this ligation, the venous drainage of the testis must rely on its collateral pathways. The main collateral routes are the cremasteric (external spermatic) veins, which drain into the inferior epigastric vein, and the deferential veins (veins of the vas deferens), which drain into the pelvic venous plexus. Of these, the cremasteric venous system is considered the predominant collateral pathway that takes over testicular drainage after the main testicular vein has been surgically ligated. Therefore, this becomes the primary route for venous outflow post-surgery.

Question 100. Which test would be suitable for assessing incompetence of the superficial femoral vein (SFJ) in a patient who has dull aching pain and twisted veins in both lower limbs?

A. Fegan's test

B. Homan's test

C. Modified Perthes test

D. Brodie Trendelenburg test

Correct answer: D

Brodie Trendelenburg test The patient's symptoms are suggestive of varicose veins due to chronic venous insufficiency. The Brodie-Trendelenburg test is a classic clinical maneuver used to assess the competence of the valves in the superficial venous system, specifically at the saphenofemoral junction (SFJ), and in the perforating veins. The test involves elevating the patient's leg to empty the superficial veins, then applying a tourniquet at the upper thigh to occlude the great saphenous vein. The patient then stands up. If the varicose veins fill slowly from below, it indicates competent perforator valves. Rapid filling from below suggests incompetent perforators. The tourniquet is then released. A sudden, rapid downward filling of the veins from above indicates incompetence of the valve at the saphenofemoral junction. Homan's test (B) is for deep vein thrombosis.

Question 101. For a 53-year-old patient presenting with rectal bleeding, where a colorectal condition is suspected by the surgeon, which is most appropriate diagnostic test?

A. Colonoscopy

B. CEA levels

C. CA-19-9 levels

D. CECT (Contrast-enhanced CT scan)

Correct answer: A

Colonoscopy Rectal bleeding in a 53-year-old patient is a significant symptom that requires a

thorough evaluation to rule out colorectal cancer and to identify other potential causes like diverticulosis or polyps. The gold standard and most appropriate diagnostic test in this situation is a colonoscopy. This procedure allows for direct visualization of the entire mucosal surface of the colon and rectum. It is highly sensitive and specific for detecting neoplasms, inflammatory changes, and sources of bleeding. Crucially, it also has a therapeutic capability, as it allows for the biopsy of any suspicious lesions and the removal of polyps (polypectomy) during the same procedure. Tumor markers like CEA (B) are not sensitive or specific enough for diagnosis and are primarily used for monitoring. A CT scan (D) is used for staging cancer but is not the primary tool for diagnosing a mucosal lesion causing bleeding.

Question 102. A 45-year-old woman with early-stage breast cancer is considering her surgical options with her surgeon. Which of the following does not accurately describe an aspect of breast conservation surgery?

A. Wide local excision

B. Post-operative radiotherapy

C. Lymph node dissection

D. Axillary dissection

Correct answer: D

Axillary dissection Breast conservation surgery (BCS), also called lumpectomy or wide local excision, is performed in early-stage breast cancer to remove the tumor along with a margin of normal surrounding tissue while preserving most of the breast. The primary goal is to achieve oncological safety with good cosmetic outcome. A key component of BCS is wide local excision, making option (A) correct. After surgery, post-operative radiotherapy is routinely given to the remaining breast tissue to reduce the risk of local recurrence; therefore, option (B) is also a standard part of treatment. Evaluation of lymph node status is essential in breast cancer management. However, in early-stage disease, this is typically done through sentinel lymph node biopsy, which is less invasive than full axillary clearance. Hence, some form of limited lymph node assessment (option C) is usually included. Axillary dissection, which involves removal of multiple lymph nodes from the axilla, is not routinely performed in breast conservation surgery unless there is proven nodal involvement. Therefore, option (D) does not accurately describe a standard aspect of breast conservation surgery.

Question 103. A 55-year-old woman, a smoker for 30 years, reports a lump in her breast, which is confirmed by physical examination. Considering her extensive history of smoking, which of the following breast conditions is most directly associated with smoking?

A. Mondor disease

B. Fibroadenoma

C. Ca breast

D. Duct ectasia

Correct answer: D

Duct ectasia While smoking is a known risk factor for breast cancer, it has a stronger and more direct association with certain benign breast conditions. Mammary duct ectasia is an inflammatory condition characterized by the dilation of the large milk ducts located beneath the nipple. It is strongly linked to cigarette smoking. The toxins in cigarette smoke are thought to directly damage the ductal epithelium, leading to inflammation, blockage, and subsequent dilation and secretion. It often presents with nipple discharge (which can be multicolored), a palpable subareolar mass or "ropy" feel, and nipple retraction. While breast cancer (C) risk is increased by smoking, the association is not as direct as with duct ectasia. Mondor disease (A) is a superficial thrombophlebitis, and fibroadenomas (B) are not linked to smoking.

Question 104. Which of the subsequent options is not considered a perianal approach for rectal prolapse?

A. Altemeir

B. Frykman and Goldberg's

C. Thiersch

D. Delorme

Correct answer: B

Frykman and Goldberg's The surgical management of a full-thickness rectal prolapse can be performed via either an abdominal approach or a perineal (perianal) approach. The choice of procedure depends on the patient's age, comorbidities, and the surgeon's preference. The perineal approaches are performed through an incision around the anus. These include the Altemeier procedure (a perineal rectosigmoidectomy), the Delorme procedure (a mucosal sleeve resection with placation of the muscle wall), and the Thiersch procedure (the placement of a circumferential suture to narrow the anal orifice, now rarely used). In contrast, the Frykman-Goldberg procedure is an abdominal approach. It is a type of rectopexy that involves mobilizing the rectum and fixing it to the sacrum, often combined with a sigmoid resection, and is performed via an abdominal incision or laparoscopically.

Question 105. A 28 year old female reported to OPD with C/O swelling in mouth On Clinical examination swelling in the floor of the mouth can be seen which was non tender and soft in consistency, based on the provided image What can be the correct diagnosis? NODIA MEDINK

A. Cystic hygroma

B. Ranula

C. Dermoid

D. Mucocele

Correct answer: A

Y chromosome short arm The SRY gene, which stands for the Sex-determining Region Y, is the master gene responsible for initiating male development in mammals. It acts as a transcription factor that triggers a cascade of downstream gene expression leading to the development of the undifferentiated embryonic gonads into testes. In the absence of a functional SRY gene, the gonads will default to developing into ovaries. This critical gene is located on the short arm (p arm) of the Y chromosome. Its presence on the Y chromosome is the fundamental genetic reason why the inheritance of a Y chromosome typically leads to a male phenotype. The long arm (q arm) of the Y chromosome contains other genes, including those involved in spermatogenesis, but the SRY gene is specifically on the short arm.

Question 106. Which of the following statements accurately describes thymoma?

A. Thymoma is the most common neoplasia of the thymus

B. Thymoma is primarily located in the posterior mediastinum.

C. Chest X-ray is the investigation of choice for the diagnosis of thymoma.

D. Thymoma is typically asymptomatic and rarely causes any symptoms

Correct answer: A

Thymoma is the most common neoplasia of the thymus A thymoma is a tumor that arises from the epithelial cells of the thymus gland, and it is indeed the most common primary neoplasm of the thymus and the anterior mediastinum in adults. Thymomas are characteristically located in the anterior mediastinum, not the posterior mediastinum (B). While a chest X-ray may incidentally detect an anterior mediastinal mass, the investigation of choice for diagnosis and characterization is a contrast-enhanced CT scan of the chest, not a plain X-ray (C). While some thymomas are found incidentally, many are symptomatic. About 30-40% of patients present with local compressive symptoms like cough or chest pain. Furthermore, thymomas are strongly associated with paraneoplastic syndromes, most notably myasthenia gravis, which is present in about 30-50% of patients with thymoma, making them far from asymptomatic (D).

Question 107. After lap cholecystectomy what should be the urine output of the patient if the renal function of the patient is normal?

A. 0.1 CC/hr

B. 0.5 ml/min

C. 0.5-1.5 ml/kg/min

D. 1 ml/kg/min

Correct answer: B

0.5 mL/min. After laparoscopic cholecystectomy, urine output is an important indicator of adequate renal perfusion and overall hemodynamic stability. In adults with normal renal function, the standard benchmark for adequate urine output is at least 0.5 mL/kg/hour. This value is widely used in postoperative monitoring and critical care settings to assess kidney function and tissue perfusion. For example, in a 60 kg adult, the minimum acceptable urine

output would be about 30 mL per hour (0.5 × 60). When converted, this corresponds to approximately 0.5 mL per minute, which matches option (B). (C) Option, 0.5–1.5 mL/kg/min, is incorrect because that would represent an excessively high urine output. For a 60 kg person, it would equal 30–90 mL per minute, or 1800–5400 mL per hour, which is physiologically unrealistic. (A) Option is too low and inadequate to indicate normal renal function, and option (D) overestimates the normal expected output. Thus, the correct postoperative urine output in a patient with normal renal function is best represented by 0.5 mL/min.

Question 108. Which of the subsequent conditions is linked with perineural invasion?

A. Adenoid cystic carcinoma

B. Pleomorphic adenoma

C. Mucoepidermoid tumor

D. Pancreatic cancer

Correct answer: A

Adenoid cystic carcinoma Perineural invasion (PNI), the process of tumor cells invading in, around, and along nerves, is a well-known feature of certain malignancies and is associated with a poorer prognosis. Among salivary gland tumors, adenoid cystic carcinoma is notorious for its marked propensity for perineural invasion. This is a key histological feature of the tumor and is responsible for its tendency to spread extensively along nerve pathways, often far beyond the primary tumor site, leading to a high rate of local recurrence and late distant metastases. While perineural invasion can also be seen in pancreatic cancer and high-grade mucoepidermoid carcinoma, it is a defining and almost universal characteristic of adenoid cystic carcinoma. Pleomorphic adenoma is a benign tumor and does not exhibit PNI.

Question 109. What is the minimum platelet count necessary for surgical procedures?

A. 50,000(10^9/L)

B. 20,000(10^9/L)

C. 30,000 (10^9/L)

D. 40,000 (10^9/L)

Correct answer: A

50,000(10^9/L) The decision to proceed with surgery in a patient with thrombocytopenia depends on the type of procedure and the risk of bleeding. While there is some variation in practice, a generally accepted and safe threshold for the minimum platelet count required for most major, non-neuraxial surgical procedures is 50,000/ μ L. A count at or above this level is usually considered sufficient to ensure adequate primary hemostasis and prevent excessive intraoperative or postoperative bleeding. For procedures with a very low bleeding risk, a lower count might be acceptable. Conversely, for high-risk procedures, such as neurosurgery or epidural catheter placement, a much higher platelet count, often approaching 100,000/ μ L, is

typically required. Platelet counts below 20,000/ μ L (B) are associated with a high risk of spontaneous bleeding, and surgery would be contraindicated without a pre-operative platelet transfusion.

Question 110. For a 52-year-old female patient with HER-2 positive breast cancer showing resistance to trastuzumab, which treatment option is being considered next by the oncologist?

A. Lapatinib

B. Sorafenib

C. Vemurafenib

D. Erlotinib

Correct answer: A

Lapatinib Trastuzumab is a monoclonal antibody that targets the extracellular domain of the HER2 receptor and is a cornerstone of therapy for HER2-positive breast cancer. However, acquired resistance to trastuzumab can develop. In this setting, alternative HER2-targeted agents are employed. Lapatinib is an oral small-molecule tyrosine kinase inhibitor (TKI) that targets the intracellular kinase domain of both the HER2 receptor and the epidermal growth factor receptor (EGFR). By blocking the intracellular signaling cascade, lapatinib can overcome resistance to the extracellularly acting trastuzumab. It is often used in combination with chemotherapy for patients with advanced or metastatic HER2-positive breast cancer that has progressed on a trastuzumab-based regimen. The other drugs listed are TKIs that target different pathways: sorafenib is a multi-kinase inhibitor, vemurafenib targets BRAF, and erlotinib targets EGFR.

Question 111. A 56 year old chronic smoker presented with weight loss and cough for more than 1 year. He is having hypercalcemia. On biopsy there are atypical cells with hyperchromatic nuclei. What is the diagnosis?

A. SCC

B. Adenocarcinoma

C. Small cell cancer

D. Atypical large cell

Correct answer: A

SCC This patient presents with several classic features of lung cancer. A long history of chronic smoking is the most significant risk factor. The clinical presentation of chronic cough and weight loss is highly suggestive of malignancy. The key finding is hypercalcemia, which, in the context of lung cancer, is most often a paraneoplastic syndrome caused by the tumor's production of parathyroid hormone-related peptide (PTHrP). This specific paraneoplastic syndrome is most strongly associated with squamous cell carcinoma (SCC) of the lung. Histologically, SCC is characterized by malignant squamous cells showing features of

keratinization, intercellular bridges, and cellular atypia with hyperchromatic nuclei. While small cell cancer (C) can also cause paraneoplastic syndromes, it is more commonly associated with SIADH or Cushing's syndrome, and hypercalcemia is the classic association for squamous cell carcinoma.

Question 112. A 45-year-old male presents with a diagnosis of acute diverticulitis, which was managed with nothing by mouth (NPO), IV cephalosporin, and metronidazole. While the patient reports decreased left lower quadrant pain, it persists. He no longer has diarrhea, and a CT scan is recommended. Which of the following findings would most warrant a recommendation for elective surgery?

A. Second episode of severe pain

B. Family history

C. a2-b1-c4-d3

D. a4-b1-c3-d2

Correct answer: A

a2-b4-c1-d3 1. Trisomy 13 is the chromosomal abnormality that causes Patau syndrome, a severe condition with multiple congenital anomalies such as microcephaly, cleft lip/palate, and polydactyly (a - 2). 2. Trisomy 18 is the chromosomal abnormality responsible for Edward syndrome, another severe condition characterized by features like low-set ears, a small jaw, and clenched fists with overlapping fingers (b - 4). 3. Huntington disease is a neurodegenerative disorder caused by a specific type of mutation known as a trinucleotide repeat expansion in the huntingtin gene (c - 1). 4. Sickle cell disease is caused by a specific point mutation in the beta-globin gene, which results in the substitution of glutamic acid with valine at the sixth position of the protein chain (d - 3).

Question 113. A 10-week-old infant, previously experiencing inconsolable crying and a fever of 40 degrees Celsius following a 6-week vaccination, is now due for another round of immunizations. What is the most advisable course of action?

A. Don't give DT

B. Give DPT

C. Don't give DPT

D. Defer for 1 month

Correct answer: C

Don't give DPT A 10-week-old infant previously developed inconsolable crying and high fever (40°C) after the 6-week vaccination. These are recognized severe adverse reactions to the whole-cell pertussis (wP) component of the DPT vaccine. According to immunization guidelines: 1. Persistent inconsolable crying lasting more than 3 hours 2. High fever ≥ 40°C within 48 hours of vaccination 3. Hypotonic hyporesponsive episode (HHE) 4. Seizures within 3 days These are considered precautions or contraindications to further whole-cell pertussis vaccination. In such

cases, the appropriate step is: 5. Avoid further doses of whole-cell DPT 6. Continue immunization using DT (diphtheria + tetanus) vaccine 7. Alternatively, use acellular pertussis vaccine (DTaP) if available Therefore, the child should not receive DPT again. Deferring for one month does not solve the risk issue. Giving DPT again may provoke a more severe reaction. Hence, the most advisable course of action is : (C) Don’t give DPT.

Question 114. During a temple visit, a child with his grandmother began to cry incessantly. Medical evaluation revealed the child was in severe pain, had high blood pressure, an increased heart rate, was sweating profusely, had a persistent erection, and his skin was cool and clammy. Which treatment option is most appropriate for this patient?

A. Prazosin

B. Adrenaline

C. Methylprednisolone

D. Anti snake venom

Correct answer: A

Prazosin This unusual and dramatic clinical presentation is the classic toxidrome of a scorpion sting, particularly from the Indian red scorpion (Mesobuthus tamulus). The venom of this scorpion contains potent neurotoxins that cause a massive and uncontrolled release of catecholamines (epinephrine and norepinephrine) from the adrenal glands and sympathetic nerve endings, leading to a "sympathetic storm." This results in the characteristic signs of severe pain, tachycardia, hypertension, sweating, and cool, clammy extremities due to vasoconstriction. It can also cause priapism (persistent erection). The cornerstone of management for the cardiovascular manifestations of a severe scorpion sting is the administration of an alpha-adrenergic blocker to counteract the intense vasoconstriction. The drug of choice for this is prazosin, which effectively reverses the hypertension and improves peripheral circulation. Adrenaline would worsen the condition.

Question 115. A 2-month-old pediatric patient has had a persistent swelling on the head since birth. What is the most likely diagnosis?

A. Cephalhematoma

B. Caput succedaneum

C. Soft tissue swelling

D. None of the above

Correct answer: A

Cephalhematoma The key differentiating feature in this clinical scenario is the persistence of the head swelling for two months after birth. A caput succedaneum is a diffuse, edematous swelling of the scalp that is present at birth. It is caused by pressure on the presenting part of the scalp during delivery, crosses suture lines, and characteristically resolves within the first

few days of life. In contrast, a cephalhematoma is a subperiosteal collection of blood caused by the rupture of blood vessels between the skull and the periosteum. It is sharply demarcated, does not cross suture lines, and, crucially, resolves much more slowly. A cephalhematoma can take several weeks to months to completely resolve and may undergo calcification. Therefore, a head swelling that is still present at 2 months of age is almost certainly a cephalhematoma, not a caput succedaneum. ORTHOPEDICS

Question 116. A 40-year-old female patient experiencing vulvovaginal itching is currently prescribed an antidiabetic medication. Which of the following medications could likely be associated with her symptoms?

A. Metformin

B. Canagliflozin

C. Linagliptin

D. Liraglutide

Correct answer: B

Canagliflozin Vulvovaginal itching is a hallmark symptom of vulvovaginal candidiasis (a yeast infection). Canagliflozin is an oral antidiabetic drug that belongs to the class of sodium-glucose cotransporter 2 (SGLT2) inhibitors. The mechanism of action of SGLT2 inhibitors is to block the reabsorption of glucose in the kidneys, thereby promoting the excretion of large amounts of glucose in the urine (glucosuria). This high concentration of sugar in the genitourinary tract creates a favorable environment for the proliferation of yeast, particularly Candida albicans. Consequently, a common and well-recognized side effect of all SGLT2 inhibitors, including canagliflozin, is a significantly increased risk of developing genital mycotic infections in both men and women. Metformin (A), linagliptin (C), and liraglutide (D) work through different mechanisms and are not associated with this specific side effect.

Question 117. In puberty, what is the primary reason for the occurrence of menorrhagia?

A. Endometriosis

B. Anovulation

C. Malignancy

D. Primary amenorrhea

Correct answer: B

Anovulation Menorrhagia (heavy menstrual bleeding) and irregular bleeding are very common in the first few years after menarche. The primary underlying reason for this is the immaturity of the hypothalamic-pituitary-ovarian (HPO) axis. In early puberty, the positive feedback mechanisms required to trigger the mid-cycle luteinizing hormone (LH) surge are not yet fully established. This frequently results in anovulatory cycles, where a follicle develops and produces estrogen, but ovulation does not occur, and a corpus luteum is not formed. In the

absence of the progesterone that would normally be produced by the corpus luteum, the endometrium is exposed to prolonged, unopposed estrogen. This leads to excessive endometrial proliferation, which eventually outgrows its blood supply and breaks down irregularly and heavily. This anovulatory bleeding is the most common cause of abnormal uterine bleeding in adolescents.

Question 118. In a 30-year-old pregnant woman at 28 weeks gestation, diagnosed with a fibroid and presenting with fever, elevated white blood cell count, and pain, what is the most likely cause of her symptoms?

A. Red degeneration of fibroid

B. Fibroid torsion

C. Fibroid infection

D. Labor pain

Correct answer: A

Red degeneration of fibroid Uterine fibroids (leiomyomas) can grow rapidly during pregnancy due to the influence of high estrogen levels. Sometimes, a fibroid can outgrow its blood supply, leading to ischemic necrosis and infarction in the center of the tumor. This specific type of aseptic, hemorrhagic infarction is known as red degeneration. It is a well-known complication of fibroids, particularly during the second and third trimesters of pregnancy. The clinical presentation is characterized by acute abdominal pain localized to the fibroid, a low-grade fever, and often a mild leukocytosis (elevated white blood cell count). Nausea and vomiting may also be present. Torsion of a pedunculated fibroid (B) is much rarer. While the symptoms can mimic labor pain (D), the localized nature and associated fever make red degeneration the most likely diagnosis.

Question 119. Which condition has the lowest occurrence of perinatal transmission?

A. HIV

B. HSV

C. Rubella

D. CMV

Correct answer: C

Rubella Perinatal (vertical) transmission rates vary among infections: 1. CMV is the most common congenital viral infection. Primary maternal infection has a transmission rate of about 30–40%, and even higher in later pregnancy. 2. HIV has a transmission rate of 15–45% without treatment, but this can be reduced to <5% with antiretroviral therapy. 3. HSV has a high transmission risk (30–50%) if the mother has a primary genital infection near delivery. In contrast, rubella has a lower overall rate of perinatal transmission because: 4. Transmission mainly occurs during primary maternal infection in early pregnancy. 5. The risk decreases significantly in later trimesters. 6. Widespread vaccination programs have dramatically reduced

the incidence of maternal rubella infection, making congenital rubella syndrome relatively rare in vaccinated populations. Although early pregnancy rubella infection can have severe fetal consequences, the overall occurrence of perinatal transmission is lower compared to CMV and untreated HIV. Therefore, among the given options, the condition with the lowest occurrence of perinatal transmission is Rubella.

Question 120. In a scenario where a 36-year-old pregnant patient reports whitish vaginal discharge and yellow staining on clothing, but without symptoms of itching or redness, and with an acidic pH, what is the most likely explanation for these observations?

A. Candidiasis

B. Bacterial vaginosis

C. Trichomoniasis

D. Increased normal vaginal discharge

Correct answer: D

Increased normal vaginal discharge During pregnancy, hormonal changes, particularly high levels of estrogen, lead to a physiological increase in cervical secretions and vaginal transudate. This condition is known as leukorrhea of pregnancy and represents an increased normal vaginal discharge. This discharge is typically thin to mucoid, whitish in color, and has a mild or no odor. When it dries on clothing, it may appear yellowish. The key differentiating features from a pathological discharge are the absence of inflammatory symptoms such as itching, soreness, or redness, and the maintenance of a normal acidic vaginal pH, which reflects a healthy, lactobacillus-dominant vaginal flora. In contrast, candidiasis (A) is characterized by intense itching. Bacterial vaginosis (B) and trichomoniasis (C) are associated with a malodorous discharge and an elevated (non-acidic) vaginal pH.

Question 121. What are clue cells?

A. Vaginal epithelial cells lined by bacteria

B. Cervical epithelial cells lined by bacteria

C. Uterine endothelial cells lined by bacteria

D. Abdominal cells lined by bacteria

Correct answer: A

Vaginal epithelial cells lined by bacteria Clue cells are the single most reliable microscopic finding for the diagnosis of bacterial vaginosis (BV). They are defined as vaginal squamous epithelial cells that are so densely coated with adherent coccobacilli (primarily Gardnerella vaginalis and other BV-associated anaerobes) that the borders of the epithelial cells become obscured and indistinct. This dense bacterial coating gives the cells a characteristic stippled or granular appearance when viewed under a microscope on a saline wet mount of the vaginal discharge. The presence of clue cells in more than 20% of the epithelial cells on the slide is one

of the four Amsel criteria for diagnosing BV and is considered the most specific sign. These cells are exfoliated from the vaginal mucosa, not the cervix, uterus, or abdomen.

Question 122. For a patient presenting with a retroverted uterus, dysmenorrhea, and dyspareunia, what is the recommended next step in investigation?

A. Ultrasound (USG)

B. Diagnostic Laparoscopy

C. Laparotomy

D. HSG (Hysterosalpingography)

Correct answer: B

Diagnostic Laparoscopy A retroverted uterus alone is often a normal anatomical variant and may not cause symptoms. However, when it is associated with dysmenorrhea (painful menstruation) and dyspareunia (pain during intercourse), it strongly suggests an underlying pelvic pathology, most commonly endometriosis or pelvic adhesions. Endometriosis occurs when endometrial tissue is present outside the uterus, often involving the ovaries, uterosacral ligaments, and pouch of Douglas. It can cause a fixed retroverted uterus due to adhesions between pelvic structures. The symptoms of progressive dysmenorrhea, deep dyspareunia, and chronic pelvic pain are classic for this condition. While ultrasound may detect ovarian endometriomas, it often misses small peritoneal implants or subtle adhesions. Hysterosalpingography (HSG) is primarily used to evaluate tubal patency in infertility cases and does not help diagnose endometriosis. Laparotomy is not indicated as an initial investigation. Diagnostic laparoscopy is considered the gold standard because it allows direct visualization of endometriotic lesions and adhesions, and biopsy can be taken for confirmation. It also provides the opportunity for simultaneous therapeutic intervention. Therefore, diagnostic laparoscopy is the recommended next step.

Question 123. A 15-year-old girl presents with primary amenorrhea, development of pubic hair, prepubertal breasts, a blind-ending vagina, clitoromegaly, normal testosterone levels, and a 46 XY karyotype. What condition explains these clinical findings?

A. 17-Hydroxylase deficiency

B. Swyer syndrome

C. 5-alpha reductase deficiency

D. Complete Androgen Insensitivity Syndrome (AIS)

Correct answer: C

5-alpha reductase deficiency The patient has a 46,XY karyotype but has developed along female lines, indicating a disorder of sex development. The key to the diagnosis is the specific pattern of androgen effects. Normal testosterone levels indicate functional testes. The development of pubic hair and clitoromegaly at puberty demonstrates that the body is

responsive to testosterone. However, the external genitalia were female-appearing at birth (blind-ending vagina), and breast development has not occurred. This specific dissociation between the effects of testosterone and dihydrotestosterone (DHT) is the hallmark of 5-alpha reductase deficiency. In this condition, the enzyme that converts testosterone to the more potent DHT is absent. Since DHT is required for the masculinization of the external genitalia in utero, these individuals are born with female or ambiguous genitalia. At puberty, the surge in testosterone drives virilization (pubic hair, clitoromegaly, voice deepening) but does not lead to breast development.

Question 124. What is the wrong match? a. Uterine Pro- lapse 1. Hysterectomy b. Vault prolapse 2. Sacrospinous fixa- tion c. Rectocele 3. Posterior colpoperi- neorrhaphy d. Cystocele 4. Colposuspension

A. a-1

B. b-2

C. c-3

D. d-4

Correct answer: D

d-4 This question matches pelvic organ prolapse conditions with their surgical repairs. A hysterectomy can be part of the surgical management for severe uterine prolapse (a-1). Sacrospinous fixation is a common procedure used to suspend the vaginal vault after a hysterectomy to correct vault prolapse (b-2). A rectocele, a prolapse of the posterior vaginal wall, is repaired by a posterior colpoperineorrhaphy (c-3). A cystocele is a prolapse of the anterior vaginal wall, which is surgically corrected by an anterior colporrhaphy. Colposuspension (d-4), such as a Burch colposuspension, is a procedure specifically designed to treat stress urinary incontinence by elevating and supporting the bladder neck and urethra. While it may provide some support to the anterior vaginal wall, its primary indication is for incontinence, not the anatomical correction of a cystocele. Therefore, this is the incorrectly matched pair.

Question 125. What is the underlying reason for the absence of fructose in seminal fluid?

A. Congenital absence of seminal vesicle

B. Ejaculatory duct obstruction

C. Both of the above

D. None of the above

Correct answer: C

Both of the above Fructose is the primary source of energy for sperm motility and is produced almost exclusively by the seminal vesicles. The seminal vesicles secrete their fructose-rich fluid into the ejaculatory ducts. Therefore, the absence of fructose in a semen analysis (azoospermia

with low volume and acidic pH) points to a problem with either the production or the transport of seminal vesicle fluid. This can be caused by two main conditions. First, a congenital bilateral absence of the seminal vesicles (often associated with congenital bilateral absence of the vas deferens, a condition linked to the cystic fibrosis gene) would mean that fructose is not produced. Second, a bilateral ejaculatory duct obstruction would prevent the fluid from the seminal vesicles and the sperm from the vas deferens from entering the urethra and being ejaculated. In either case, the resulting ejaculate would be low in volume and fructose-negative.

Question 126. Which of the following outcomes is associated with Hormone Replacement Therapy (HRT)?

A. Decreased risk of breast cancer

B. Decreased risk of endometrial cancer

C. Increased risk of vertebral fracture

D. Decreased risk of colon cancer

Correct answer: D

Decreased risk of colon cancer The risks and benefits of menopausal hormone replacement therapy (HRT) have been extensively studied. It is well-established that combined estrogen-progestin therapy is associated with a small but significant increased risk of breast cancer (A is false). Unopposed estrogen therapy in a woman with a uterus dramatically increases the risk of endometrial cancer (B is false). One of the primary benefits and indications for HRT is the prevention of osteoporosis; it significantly decreases the risk of osteoporotic fractures, including vertebral fractures (C is false). An interesting and consistent finding from large randomized trials, such as the Women's Health Initiative, was an unexpected benefit: women randomized to HRT (both combined and estrogen-only) had a statistically significant decreased risk of developing colorectal (colon) cancer compared to those on placebo. The exact mechanism for this protective effect is not fully understood but is a well-documented association.

Question 127. What is the advised treatment plan for a 24-year- old woman with Polycystic Ovary Syndrome Click Here to Buy book on Amazon page 245 INICET Examination Paper

A. Agranulocytosis

B. Renal bleed

C. Hepatomegaly

D. Seizures

Correct answer: A

Agranulocytosis Clozapine is an atypical antipsychotic medication that is uniquely effective for treatment-resistant schizophrenia, but its use is restricted due to the risk of several rare yet potentially fatal adverse effects. The most well-known and feared of these is agranulocytosis, a

severe form of neutropenia where the absolute neutrophil count drops to dangerously low levels. This catastrophic loss of neutrophils renders the patient profoundly immuno compromised and at high risk for life-threatening infections. Because of this risk, patients prescribed clozapine must be enrolled in a mandatory registry and undergo regular, rigorous monitoring of their white blood cell and absolute neutrophil counts, typically weekly for the first several months, then bi-weekly, and eventually monthly. While other serious side effects like seizures (D), myocarditis, and metabolic syndrome can occur, it is the risk of agranulocytosis that necessitates the most stringent monitoring protocol associated with this drug.

Question 128. Which diagnostic test should be performed next for a woman who has painless vulvar ulcers, a history of multiple sexual partners, and a previous stillbirth at 28 weeks?

A. VDRL

B. NAT

C. Vaginal swab and culture

D. PCR

Correct answer: A

VDRL This clinical scenario presents multiple red flags for syphilis. The presence of a painless ulcer (chancre) on the vulva is the classic sign of primary syphilis. A history of multiple sexual partners increases the risk for sexually transmitted infections. Most critically, a history of a mid-trimester stillbirth is a major adverse pregnancy outcome that is strongly associated with untreated maternal syphilis. Given this highly suggestive constellation of findings, the immediate and most appropriate next step is serological screening for syphilis. The Venereal Disease Research Laboratory (VDRL) test is a standard non-treponemal test used for screening. Although it can have false positives, a reactive VDRL in this context would be highly indicative of syphilis and would prompt further confirmatory testing with a specific treponemal test (like FTA-ABS or TPPA). While other STIs are possible, the unique combination of the painless chancre and the adverse obstetric history makes syphilis the top priority to investigate.

Question 129. Which of the following is not a cause of non- immune hydrops?

A. Parvovirus

B. ABO incompatibility

C. Cardiovascular causes

D. Thalassemia

Correct answer: B

ABO incompatibility Hydrops fetalis is the excessive accumulation of fluid in the fetal extravascular compartments. It is broadly divided into immune and non-immune causes. Immune hydrops is caused by alloimmune hemolytic disease of the fetus and newborn, most classically due to Rh(D) incompatibility, although other red cell antibodies can be responsible.

ABO incompatibility is a cause of hemolytic disease, but it very rarely, if ever, leads to the severe anemia required to cause hydrops fetalis. In contrast, non-immune hydrops fetalis (NIHF) accounts for about 90% of cases and has a wide range of causes. The most common etiologies include cardiovascular abnormalities (e.g., structural heart defects, arrhythmias), chromosomal anomalies, and severe fetal anemia from non-immune causes. These causes of anemia include infections like Parvovirus B19 (A), which causes aplastic crisis, and alpha-thalassemia major (D), which leads to a complete inability to produce functional hemoglobin.

Question 130. Which of the following statements is incorrect?

A. Zygote is Bipotential at 8 weeks

B. DHT is necessary for the development of external genitals

C. MIS inhibits the formation of Mullerian duct

D. WD forms male internal genitalia

Correct answer: A

Zygote is Bipotential at 8 weeks Sexual differentiation is a sequential process. Initially, the embryo, including the gonads, is bipotential, meaning it has the potential to develop into either a male or a female. This bipotential state exists up to around the 6th or 7th week of gestation. The presence of the SRY gene on the Y chromosome then directs the bipotential gonad to differentiate into a testis. The developing testis produces two key hormones: testosterone and Müllerian-inhibiting substance (MIS). MIS, also known as anti-Müllerian hormone, causes the regression of the Müllerian ducts (the precursors of the female internal genitalia). Testosterone supports the development of the Wolffian ducts (WD) into the male internal genitalia (epididymis, vas deferens, seminal vesicles). Testosterone is also converted to dihydrotestosterone (DHT), which is essential for the development of the male external genitalia. The zygote itself is genetically determined at fertilization, and by 8 weeks, differentiation is already underway.

Question 131. What is the outcome of the absence or mutation of the SRY gene?

A. Agenesis of testis

B. Undescended testis

C. Hydrocele testis

D. None of the above

Correct answer: A

Agenesis of testis The SRY (Sex-determining Region Y) gene, located on the Y chromosome, is the master switch that initiates male development. In a 46,XY embryo, the SRY gene product acts as a transcription factor that directs the bipotential, undifferentiated gonads to develop into testes. If the SRY gene is absent (e.g., due to a deletion from the Y chromosome) or has a loss-of-function mutation, the signal for testicular development is never initiated. In the

absence of this SRY signal, the undifferentiated gonads will follow their default developmental pathway and differentiate into ovaries, and the embryo will develop along female lines despite having a 46,XY karyotype. This condition is known as 46,XY complete gonadal dysgenesis, or Swyer syndrome. Therefore, the direct outcome of an absent or non-functional SRY gene is the failure of the testes to form, which can be described as agenesis of the testis.

Question 132. Which medication should be given to reverse respiratory distress in a woman who received morphine sulfate for labor pain?

A. Epinephrine

B. Atropine

C. Pralidoxime

D. Naloxone

Correct answer: D

Naloxone Morphine is a potent opioid analgesic commonly used for pain management. The most serious and life-threatening adverse effect of opioid administration is respiratory depression, which can progress to apnea and respiratory arrest. The patient's development of respiratory distress after receiving morphine is a clear sign of opioid-induced toxicity. The specific and life-saving antidote for opioid overdose is naloxone. Naloxone is a pure, competitive opioid receptor antagonist. It has a high affinity for mu-opioid receptors and works by rapidly displacing the opioid agonist (morphine, in this case) from these receptors in the central nervous system. This action promptly reverses the effects of the opioid, most critically the respiratory depression. Epinephrine (A) is used for anaphylaxis, atropine (B) for bradycardia or cholinergic poisoning, and pralidoxime (C) for organophosphate poisoning.

Question 133. What is the first diagnostic test that should be performed for a patient experiencing dyspareunia, dysmenorrhea, and adnexal tenderness?

A. Diagnostic laparoscopy

B. Transvaginal USG

C. Colposcopy

D. Pelvic Ultrasonography

Correct answer: B

Transvaginal USG The clinical triad of dyspareunia (painful intercourse), dysmenorrhea (painful periods), and adnexal tenderness is highly suggestive of underlying pelvic pathology, particularly conditions like endometriosis, pelvic inflammatory disease (PID), or ovarian cysts. The most appropriate initial investigation in this setting is a transvaginal ultrasound (USG). A transvaginal USG provides detailed imaging of the uterus, ovaries, and surrounding pelvic structures. It can identify ovarian endometriomas ("chocolate cysts"), hydrosalpinx (suggestive of PID), uterine fibroids, or adenomyosis, all of which can cause these symptoms. It is a non-invasive, readily available, and cost-effective first step. While a diagnostic laparoscopy (A)

is the gold standard for diagnosing peritoneal endometriosis, it is an invasive surgical procedure and is typically performed after initial non-invasive imaging. Colposcopy (C) is used to examine the cervix.

Question 134. Which of the following is not a potential complication of the substantial blood transfusion given to a 25-year-old mother who developed acute postpartum hemorrhage and hypovolemic shock after delivery?

A. Hypothermia

B. Hypokalemia

C. Hypocalcemia

D. Hyperkalemia

Correct answer: B

Hypokalemia Massive blood transfusion (usually defined as replacement of one blood volume within 24 hours or ≥10 units of packed RBCs) can lead to several metabolic and physiological complications. Common complications include: 1. Hypothermia (A) → Stored blood is refrigerated, and rapid transfusion can lower body temperature. 2. Hypocalcemia (C) → Blood products contain citrate as an anticoagulant. Citrate binds calcium, leading to decreased ionized calcium levels. 3. Hyperkalemia (D) → Stored blood accumulates potassium over time due to leakage from red blood cells. Rapid transfusion can increase serum potassium levels. In contrast, hypokalemia is not typically a complication of massive transfusion. Instead, the opposite—hyperkalemia—is more commonly observed. Therefore, among the options listed, the condition that is not a usual complication of massive blood transfusion is : (B) Hypokalemia.

Question 135. Which one of the following is not transmitted during the perinatal period?

A. CMV

B. Rubella

C. Meningitis

D. Hepatitis B

Correct answer: C

Meningitis Perinatal transmission refers to infections that are passed from mother to child during pregnancy (transplacental), during labor and delivery, or shortly after birth. Several infectious agents are well known to be transmitted in this period. Cytomegalovirus (CMV) is one of the most common congenital infections. It is transmitted transplacentally and can also be acquired during delivery or through breast milk. Rubella virus is transmitted transplacentally when a mother acquires primary infection during pregnancy, especially in the first trimester, leading to congenital rubella syndrome. Hepatitis B virus is commonly transmitted during childbirth from an infected mother to her newborn, particularly if the mother is HBsAg positive. In contrast, meningitis is not a specific infectious agent but a clinical condition characterized by

inflammation of the meninges. While certain organisms causing neonatal meningitis (such as Group B Streptococcus) may be transmitted during birth, meningitis itself is not transmitted as a disease entity. Therefore, among the options given, meningitis is not transmitted during the perinatal period.

Question 136. What condition is the banana sign observed in?

A. Spina bifida

B. NCC

C. Omphalocele

D. Anencephaly

Correct answer: A

Spina bifida The "banana sign" is a specific and important ultrasonographic marker that is highly associated with open spina bifida. This sign refers to the abnormal shape of the fetal cerebellum, which appears flattened and curved like a banana. The abnormal shape is a direct consequence of the Arnold-Chiari II malformation, a condition in which the cerebellum and brainstem are pulled downward and herniate through the foramen magnum. This herniation is caused by the tethering effect of the open spinal cord defect further down the back. The presence of the banana sign on a second-trimester prenatal ultrasound is a strong indicator of an underlying open neural tube defect and should prompt a detailed examination of the fetal spine to identify the spina bifida lesion. Neurocysticercosis (NCC) and omphalocele are unrelated conditions. Anencephaly involves absence of the cranial vault.

Question 137. What is the most probable diagnosis for a male patient who has a persistent, itchy rash on his side that hasn’t responded to over-the-counter treatments such as Lotrimin and hydrocortisone, and who also has similar lesions on one palm and one sole, with no involvement of the oral mucosa?

A. Urticaria

B. Viral exanthem

C. Tinea corporis

D. Erythema multiforme

Correct answer: D

Erythema multiforme This patient has a persistent itchy rash on the side that did not respond to antifungal (Lotrimin) or steroid (hydrocortisone) creams, along with lesions on one palm and one sole. The involvement of acral surfaces (palms and soles) strongly suggests erythema multiforme (EM). Erythema multiforme is an acute, immune-mediated condition often triggered by infections (commonly herpes simplex virus) or medications. It typically presents with target or iris lesions, especially on the extremities, including palms and soles. Lesions are often symmetric and may spread to the trunk. Importantly, absence of oral mucosal involvement suggests erythema multiforme minor, rather than Stevens-Johnson syndrome or EM major.

Other options are less likely: 1. Urticaria presents with transient wheals that resolve within 24 hours. 2. Viral exanthem usually presents with widespread symmetric rash and systemic symptoms. 3. Tinea corporis causes annular, scaly lesions but does not typically involve palms and soles simultaneously in this pattern. Given acral involvement and lack of response to antifungal therapy, the most probable diagnosis is erythema multiforme.

Question 138. Match the following wood's lamp findings: 1. Erythrasma a. Yellow 2. Pityriasis versicolor b. Coral red fluo- rescence 3. Tinea capitis c. Pink 4. Vitiligo d. Green, e. Milky white

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

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

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

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

Correct answer: A

1-b, 2-a, 3-d, 4-e A Wood's lamp exam uses ultraviolet A (UVA) light to detect fluorescence in certain skin conditions. 1. Erythrasma, a superficial bacterial infection caused by Corynebacterium minutissimum, characteristically fluoresces a striking coral-red color due to the production of porphyrins by the bacteria (1 -> b). 2. Pityriasis versicolor, a fungal infection caused by Malassezia species, typically shows a faint yellow to yellow-green fluorescence (2 -> a). 3. Tinea capitis, a fungal infection of the scalp, can sometimes show fluorescence depending on the causative organism. Infections caused by Microsporum species classically fluoresce a bright blue-green (3 -> d). 4. Vitiligo, a disorder of depigmentation, is accentuated under a Wood's lamp. The depigmented patches appear as a bright, chalky, or milky-white color due to the absence of melanin, which would normally absorb the UV light (4 -> e).

Question 139. What is the most likely diagnosis in a patient receiving nivolumab (anti-PD1 therapy) who develops pruritus, eczema, and urticarial lesions, with biopsy showing a subepidermal blister and direct immunofluorescence demonstrating linear C3 and IgG deposition along the basement membrane?

A. Dermatitis herpetiformis

B. Pemphigus vulgaris

C. Pemphigus foliaceous

D. Bullous pemphigoid

Correct answer: D

Bullous pemphigoid Immune checkpoint inhibitors, such as the anti-PD-1 antibody nivolumab, can cause a variety of immune-related adverse events, including autoimmune skin diseases. The clinical and laboratory findings in this patient are classic for bullous pemphigoid. This is an autoimmune blistering disease characterized by autoantibodies against hemidesmosomal proteins (BP180 and BP230) in the basement membrane zone. Histopathology reveals a

subepidermal blister with an eosinophilic infiltrate. The pathognomonic finding is on direct immunofluorescence (DIF), which shows linear deposition of IgG and/or C3 along the dermal-epidermal junction. In contrast, pemphigus vulgaris (B) is characterized by intraepidermal, suprabasal blisters and shows a "chicken-wire" pattern of intercellular IgG deposition on DIF. Dermatitis herpetiformis (A) shows granular IgA deposition in the dermal papillae.

Question 140. Which of the following is not associated with non-scarring alopecia?

A. Alopecia areata

B. Androgenetic alopecia

C. Frontal fibrosing alopecia

D. Telogen effluvium

Correct answer: C

Frontal fibrosing alopecia Alopecias are broadly classified into non-scarring and scarring (cicatricial) types. In non-scarring alopecias, the hair follicle is preserved, and hair regrowth is possible. This category includes alopecia areata (an autoimmune condition), androgenetic alopecia (male and female pattern baldness), and telogen effluvium (diffuse shedding after a stressor). In contrast, scarring alopecias involve inflammation and fibrosis that destroy the hair follicle, leading to permanent hair loss. Frontal fibrosing alopecia is a classic example of a primary cicatricial alopecia. It is considered a clinical variant of lichen planopilaris and is characterized by a progressive, band-like recession of the frontal and temporal hairline, with associated loss of eyebrows, and evidence of perifollicular inflammation and fibrosis on histology.

Question 141. Statement 1 : A 59-year-old patient presents with flaccid bullae. Histopathology shows a suprabasal acantholytic split. Statement 2 : The row of tombstones appearance is diagnostic of Pemphigus vulgaris. Which of the following statements is correct?

A. Statement 1 is incorrect

B. Statements 1 & 2 are correct, 2 is not explaining 1

C. Statement 1 and 2 is incorrect

D. Statements 1 and 2 are correct and 2 is the correct explanation for 1

Correct answer: D

Statements 1 and 2 are correct and 2 is the correct explanation for 1 Both statements describe classic features of pemphigus vulgaris, a severe autoimmune blistering disease. Statement 1 is correct: Pemphigus vulgaris is characterized by autoantibodies against desmoglein 3, leading to the loss of adhesion between keratinocytes (acantholysis). This process occurs just above the basal cell layer, resulting in a fragile, suprabasal split on histopathology, which clinically manifests as easily ruptured, flaccid bullae and erosions. Statement 2 is also correct and

directly explains the histological finding in Statement 1. The "row of tombstones" appearance is the specific histopathological term for this suprabasal split. It describes the intact basal keratinocytes that remain attached to the basement membrane, resembling a row of tombstones, while the overlying epidermis has lifted off due to acantholysis. Therefore, both statements are correct, and the second statement provides the specific name for the histological finding described in the first.

Question 142. Hyperpigmentation and keratosis can be seen in exposure to which of the following?

A. Arsenic

B. Cadmium

C. Copper

D. Mercury

Correct answer: A

Arsenic Chronic exposure to arsenic, typically through contaminated drinking water, leads to a characteristic set of dermatological manifestations. These are considered the hallmarks of chronic arsenicism. The skin changes include a diffuse or mottled hyperpigmentation, often described as "raindrop" pigmentation, which is most prominent on the trunk and extremities. Another classic finding is the development of multiple, punctate, hyperkeratotic lesions on the palms and soles, known as arsenical keratoses. These keratoses are significant as they are premalignant lesions with a risk of developing into squamous cell carcinoma. The combination of this specific pattern of pigmentation and palmar-plantar keratosis is highly suggestive of chronic arsenic exposure. The other heavy metals listed cause different toxicity profiles that do not typically include these specific skin findings. ANAESTHESIA

Question 143. What is the most appropriate immediate response when a patient’s blood pressure suddenly falls to 40 mmHg during squint surgery?

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 is a trigemino-vagal reflex in which stimulation of the ophthalmic division of the trigeminal nerve leads to increased vagal tone via the vagus nerve. The result can be bradycardia, hypotension, arrhythmias, or even asystole. If the patient’s blood pressure suddenly falls to 40 mmHg intraoperatively, the most immediate and crucial step is to stop the surgical stimulus. Removing the traction on the extraocular muscle often reverses the reflex rapidly. After

stopping the stimulus: 1. Ensure adequate oxygenation. 2. Deepen anesthesia if required. 3. Administer atropine if bradycardia persists. Adrenaline is not the first-line response unless there is cardiac arrest or severe unresponsive hypotension. Therefore, the most appropriate immediate action when sudden hypotension occurs during squint surgery is to ask the surgeon to stop the surgery.

Question 144. Murphy's eye is seen in -

A. Macintosh laryngoscope

B. Endotracheal tube

C. LMA

D. Flexible laryngoscope

Correct answer: B

Endotracheal tube The Murphy's eye is a specific design feature found on most modern endotracheal tubes (ETTs). It is a small, oval-shaped hole located on the side of the ETT, opposite the beveled tip. The primary purpose of the Murphy's eye is to serve as a safety feature. If the main distal opening of the ETT becomes occluded, for example, by pressing against the tracheal wall or by a mucus plug, the Murphy's eye provides an alternative, patent opening through which gas can still flow, thereby preventing a complete airway obstruction and allowing for continued ventilation of the patient. This feature is unique to endotracheal tubes and is not found on other airway devices like a laryngeal mask airway (LMA) or on instruments like laryngoscopes.

Question 145. A patient under general anesthesia suddenly develops tachycardia, sweating, high blood pressure, and rapid breathing. What is the most appropriate immediate action to take in this situation?

A. IV beta-blocker

B. Abandon the surgery

C. Deepen the plane of Anaesthesia

D. Nothing is required

Correct answer: C

Deepen the plane of Anaesthesia The sudden onset of tachycardia, hypertension, sweating, and tachypnea in a patient under general anesthesia is a classic presentation of a sympathetic nervous system response to a painful surgical stimulus. This indicates that the current level of anesthesia is insufficient to block the patient's autonomic reflexes to the surgical procedure. The patient is "light," meaning the plane of anesthesia is too shallow. The best and most immediate step for the anesthesiologist to take is to deepen the plane of anesthesia. This can be achieved by increasing the concentration of the volatile anesthetic agent being administered or by giving a bolus of an intravenous anesthetic agent like propofol or an opioid like fentanyl. This will rapidly suppress the sympathetic response, control the hemodynamic changes, and

ensure the patient remains adequately anesthetized for the remainder of the procedure. RADIOLOGY

Question 146. What is the most probable diagnosis for a 45-year- old patient who has dysuria and occasional back pain, with no abdominal masses or tenderness on examination, and an abdominal X-ray available? NODIA page 241 INICET Examination Paper

A. Lichen planus

B. Pityriasis Rosea

D. Atopic Dermatitis

Correct answer: B

Pityriasis Rosea The image shows multiple, oval, erythematous plaques with a fine scale, arranged with their long axes along the lines of skin cleavage, creating a "Christmas tree" pattern on the back. This eruption is characteristic of pityriasis rosea. Pityriasis rosea is a common, acute, self-limiting skin condition. It typically begins with a single, larger lesion known as a "herald patch," which is followed 1-2 weeks later by the appearance of the generalized eruption of smaller, oval, pink plaques. The lesions are often asymptomatic or may be mildly itchy. The distribution on the trunk and proximal extremities, along with the distinct morphology and pattern of the lesions, is highly suggestive of this diagnosis. Lichen planus (A) consists of violaceous, polygonal papules. Seborrheic dermatitis (C) affects the scalp, face, and chest with greasy scales.

Question 147. A 52-year-old woman comes for her routine screening mammogram, which shows a few scattered punctate calcifications in both breasts that are unchanged from her study two years ago. She takes atorvastatin and a daily vitamin. She is worried about these findings. What BI- RADS category should she receive, and how should these results be explained to her?

A. BI-RADS 1; findings are benign

B. BI-RADS 2; findings are benign

C. BI-RADS 2; findings are highly suggestive of malignancy

D. BI-RADS 3; another mammogram is needed to comment on malignancy potential

Correct answer: B

BI-RADS 2; findings are benign The Breast Imaging Reporting and Data System (BI-RADS) is a standardized system for reporting mammogram findings. BI-RADS 1 means the mammogram is completely negative. BI-RADS 2 is used for cases where there are definite benign findings. This category includes things like calcified fibroadenomas, secretory calcifications, or, as in this case, scattered punctate calcifications that are morphologically benign and have shown stability over time (unchanged from a prior mammogram). The key message for the patient is that the findings are benign and that she should continue with routine annual screening.

BI-RADS 3 indicates a probably benign finding that requires short-interval follow-up. BI-RADS 4 and 5 indicate suspicion of a malignancy. Since the calcifications are stable and benign-appearing, BI-RADS 2 is the appropriate assessment.

Question 148. A 35-year-old patient reports morning stiffness, limited chest expansion, and red eyes. Given the spinal changes seen on the radiograph, what is the most likely diagnosis?

A. 1-2

B. 3-4

C. 6-7

D. 7-8

Correct answer: C

6-7 Careful examination of the provided chest radiograph is required to identify the location of any fractures. On the left side of the chest, there are visible fracture lines through the lateral aspects of the 6th and 7th ribs. The fractures show some displacement and are a clear disruption of the normal cortical outline of the ribs. The ribs are numbered sequentially from the top down, with the first rib articulating with the T1 vertebra. By counting down from the superior aspect of the chest, the fractures can be localized to these specific mid-level ribs. There are no obvious fractures in the upper ribs (1-2 or 3-4) or the lower ribs (7-8, although the 7th is involved) on this view. The presence of multiple, adjacent rib fractures is a significant finding and requires careful assessment for underlying lung injury such as a pneumothorax or pulmonary contusion.

Question 149. Active pulmonary TB can be diagnosed on CT scan by which of the following findings?

A. Tree-in-bud appearance

B. Honeycomb appearance

C. Ground glass appearance

D. Signet ring sign

Correct answer: A

Tree-in-bud appearance While several CT findings can be seen in pulmonary tuberculosis, the "tree-in-bud" appearance is highly suggestive of active, endobronchial spread of the infection. This sign consists of small, centrilobular nodules with linear, branching opacities, which represents the impaction of caseous material and inflammatory exudate within the small airways (terminal and respiratory bronchioles). This pattern indicates that the infection is active and spreading via the airways. While not entirely specific to TB (it can be seen in other infectious and non-infectious conditions), in the right clinical context, it is a strong indicator of active disease. In contrast, honeycombing (B) is a sign of end-stage fibrosis. Ground-glass appearance (C) is a non-specific sign of inflammation or fluid in the alveoli. The signet ring sign

(D) is the hallmark of bronchiectasis. PSYCHIATRY

Question 150. What could be the potential reason behind irreversible dementia?

A. NPH

B. Hypothyroid

C. Lewy body

D. Vitamin B12 deficiency

Correct answer: C

Lewy body Dementia is a syndrome of cognitive decline that can be caused by a wide range of conditions. It is crucial to identify potentially reversible causes of dementia, as prompt treatment can restore cognitive function. These reversible causes include Normal Pressure Hydrocephalus (NPH), severe hypothyroidism, and vitamin B12 deficiency. In these conditions, treating the underlying cause (e.g., with a shunt, thyroid hormone replacement, or B12 injections) can lead to significant cognitive improvement. In contrast, neurodegenerative diseases are characterized by the progressive death of neurons and are currently considered irreversible. Dementia with Lewy bodies (DLB) is the second most common neurodegenerative dementia after Alzheimer's disease. It is caused by the abnormal accumulation of Lewy body protein aggregates in the brain, leading to progressive and irreversible cognitive decline, parkinsonism, and visual hallucinations.

Question 151. Why are routine blood tests required for a 35-year-old man with schizophrenia who is being treated with clozapine?

A. Cerebral bleed

B. Myocarditis

C. Agranulocytosis

D. Seizures

Correct answer: C

Agranulocytosis Clozapine is a highly effective atypical antipsychotic medication, often used for treatment-resistant schizophrenia. However, its use is carefully regulated due to the risk of several serious adverse effects. The most critical and well-known of these is agranulocytosis, a rare but potentially fatal condition characterized by a severe decrease in the number of white blood cells, specifically neutrophils. This profound neutropenia leaves the patient extremely vulnerable to life-threatening infections. Because of this risk, any patient prescribed clozapine must be enrolled in a mandatory monitoring program that requires regular blood tests (typically a complete blood count with differential) to check their neutrophil count. The frequency of this monitoring is highest at the beginning of treatment and continues for the entire duration of therapy. While myocarditis and seizures are also serious risks, it is the danger of agranulocytosis that necessitates the stringent blood monitoring protocol.

Question 152. A 35-year-old man with a mood disorder, who was recently started on a new psychiatric medication, arrives at the surgical emergency department with a painful erection lasting 7 hours. Which medication is most likely responsible for this condition?

A. Trazodone

B. Tianeptine

C. Venlafaxine

D. Mirtazapine

Correct answer: A

Trazodone The patient is presenting with priapism, a prolonged and painful erection that is a urological emergency. Priapism is a well-known, albeit rare, side effect of several psychotropic medications, most notably the antidepressant trazodone. Trazodone has a complex pharmacology, but its association with priapism is thought to be primarily due to its potent alpha-1 adrenergic receptor blocking activity. This alpha-blockade can lead to an imbalance of blood flow in the corpus cavernosum, with increased inflow and decreased outflow, resulting in a persistent erection. While other antidepressants and antipsychotics have been occasionally linked to priapism, the association is strongest and most classically described with trazodone. Therefore, in a patient with a mood disorder who develops priapism after starting a new medication, trazodone should be the first drug suspected.

Question 153. In which of the following conditions is La belle indifference typically observed?

A. Conversion disorder

B. Cotard syndrome

C. Schizophrenia

D. Depression

Correct answer: A

Conversion disorder La belle indifférence, a French term meaning "beautiful indifference," is a classic psychiatric sign that describes a paradoxical lack of concern or an inappropriate nonchalance shown by a patient towards what appears to be a severe and dramatic medical symptom. For example, a patient might describe being suddenly paralyzed or blind with a calm and detached demeanor that is incongruent with the seriousness of the disability. This sign was originally described by Freud and is most classically associated with conversion disorder (also known as functional neurological symptom disorder). In this condition, psychological distress is thought to be "converted" into a neurological symptom. While it is a classic sign, it is important to note that it is not present in all patients with conversion disorder and is not specific to the condition.

Question 154. The SCOFF questionnaire is used as a screening tool for which specific

disorder?

A. Eating disorder

B. Sexual disorder

C. Alcohol use disorder

D. Schizophrenia

Correct answer: A

Eating disorder The SCOFF questionnaire is a brief and widely used screening tool designed to help identify individuals who may have an eating disorder, such as anorexia nervosa or bulimia nervosa. It is a simple, five-question instrument that is easy to remember due to its acronym, SCOFF. The five questions are: 1. Do you make yourself Sick because you feel uncomfortably full? 2. Do you worry you have lost Control over how much you eat? 3. Have you recently lost more than One stone (14 lbs or 6.35 kg) in a three-month period? 4. Do you believe yourself to be Fat when others say you are too thin? 5. Would you say that Food dominates your life? A score of two or more positive answers suggests a high likelihood of an underlying eating disorder and warrants a more detailed clinical evaluation.

Question 155. A patient tells their psychiatrist, “My brain is gone. There’s no reason to eat. I’m already dead.” How would you classify the type of delusion this patient is experiencing?

A. Delusion of misidentification

B. Nihilistic delusion

C. Bizarre delusion

D. Hypochondriacal delusion

Correct answer: B

Nihilistic delusion The patient's statements are a classic example of nihilistic delusions, which are a core feature of Cotard's syndrome (also known as the delusion of negation). A nihilistic delusion is a false and fixed belief centered on themes of non-existence, death, or the futility of everything. The patient may believe that they are already dead, that parts of their body (like their brain) are missing or have ceased to function, or that the world itself has ended. The statements "my brain is gone" and "I am already deceased" directly reflect this profound sense of negation and non-existence. These delusions are most commonly seen in the context of severe psychotic depression but can also occur in other psychotic disorders. A hypochondriacal delusion (D) is a belief of having a serious illness, but not of being dead or non-existent.

Question 156. Which of the following statements regarding lithium are correct?

A. It is used for absent seizure treatment

B. It is not absorbed through the gut

C. Lithium is not teratogenic

D. It can cause postural tremors at therapeutic dosage

Correct answer: D

It can cause postural tremors at therapeutic dosage This question assesses knowledge of the pharmacology of lithium, a primary mood stabilizer. Statement (D) is correct: one of the most common side effects of lithium, which can occur even within the therapeutic range, is a fine postural tremor, especially of the hands. The other statements are incorrect. Lithium is not used to treat absence seizures (A); in fact, it can sometimes lower the seizure threshold. It is rapidly and almost completely absorbed from the gastrointestinal tract (B is incorrect). Lithium is a known teratogen (C is incorrect); exposure during the first trimester is associated with an increased risk of congenital cardiac malformations, most classically Ebstein's anomaly. Therefore, the only accurate statement is the one describing the common occurrence of postural tremors.

Question 157. What uncommon but serious adverse effects need to be monitored in a patient with schizophrenia who is being treated with clozapine? NODIA page 239 INICET Examination Paper (PCOS) who has significant facial hair, infertility, and a BMI of 40?

A. Metformin + Weight reduction + Finasteride

B. Weight reduction + Metformin

C. Weight reduction + Folic acid + Ovulation induction

D. Metformin + Clomiphene

Correct answer: A

Metformin + Weight reduction + Finasteride This patient has PCOS with infertility, significant hirsutism, and severe obesity (BMI 40). The priority in management depends on the primary complaint, which here includes infertility. First-line management in obese women with PCOS is weight reduction. Even a 5–10% reduction in body weight can restore ovulation and improve fertility. Since she desires pregnancy (infertility present), the next step is ovulation induction, commonly with letrozole (first-line) or clomiphene citrate. Folic acid is advised in all women planning conception to prevent neural tube defects. Now why not option (A)? 1. Finasteride is an anti-androgen used for hirsutism, but it is teratogenic and contraindicated in women trying to conceive. It must be avoided in infertility cases unless effective contraception is used. 2. Metformin may help in insulin resistance but is not sufficient alone for infertility management. Thus, in a woman with PCOS seeking pregnancy, the appropriate plan is : Weight reduction + Folic acid + Ovulation induction

Question 158. Which uncommon adverse effect in patients with schizophrenia taking clozapine requires routine blood monitoring?

A. Seizures

B. Cerebral bleed

C. Agranulocytosis

D. Myocarditis

Correct answer: C

Agranulocytosis Clozapine is a highly effective second-generation antipsychotic reserved for treatment-resistant schizophrenia due to its unique side effect profile, which includes several rare but serious conditions requiring diligent monitoring. The most critical of these, and the one that mandates a strict protocol of regular blood monitoring, is the risk of agranulocytosis. This is a potentially fatal condition characterized by a severe reduction in the number of neutrophils, a type of white blood cell, which dramatically increases the patient's susceptibility to severe infections. To mitigate this risk, patients on clozapine must have their blood counts checked frequently throughout their treatment course. Other serious adverse effects include a dose-dependent risk of seizures (A), myocarditis (D), and significant metabolic effects like weight gain and diabetes. However, it is the specific, idiosyncratic risk of agranulocytosis that necessitates the mandatory, regular hematological monitoring that is synonymous with clozapine therapy. ********** MEDINK (A) Hepatitis A (B) HSV (C) Rubella (D) CMV AAns (A) Hepatitis A. Perinatal transmission refers to infection passed from mother to infant during pregnancy, at the time of delivery, or shortly after birth. The likelihood of vertical transmission varies among infectious agents. 1. Cytomegalovirus (CMV) is one of the most common congenital infections. It is frequently transmitted transplacentally, especially during primary maternal infection, with a transmission rate of around 30–40%. 2. Herpes simplex virus (HSV) can also be transmitted perinatally, particularly during vaginal delivery if the mother has an active genital lesion. In primary maternal infection near term, the transmission risk may reach 30–50%. 3. Rubella is transmitted transplacentally when maternal infection occurs during pregnancy, especially in the first trimester, with a very high fetal transmission rate. In contrast, Hepatitis A is primarily transmitted through the fecal–oral route. Vertical or perinatal transmission of Hepatitis A is extremely rare. Although maternal infection may occur during pregnancy, it seldom leads to congenital infection. Therefore, among the given options, Hepatitis A has the lowest possibility of perinatal transmission. DERMATOLOGY