NEET PG 2024 Question Paper

227 recall questions with answers and explanations.

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Question 1. What is the condition or stage of the oocyte after ovulation?

A. Primary oocyte arrested in prophase 1

B. Primary oocyte arrested in prophase II

C. Secondary oocyte arrested in prophase II

D. Secondary oocyte arrested in metaphase II

Correct answer: D

During fetal life, primary oocytes begin meiosis but are arrested in prophase I. This state persists until puberty. Just prior to ovulation, a surge of Luteinizing Hormone (LH) triggers the completion of meiosis I, resulting in an unequal division that produces a large secondary oocyte and a small first polar body. The secondary oocyte then immediately enters meiosis II but is arrested in metaphase II. It is this secondary oocyte, halted at metaphase II, that is expelled from the ovary during ovulation. The meiotic process will only resume and complete if the oocyte is successfully fertilized by a sperm. Therefore, the oocyte available for fertilization post-ovulation is a secondary oocyte arrested in metaphase II. Option A describes the pre-pubertal state, while options B and C are incorrect stages of meiotic arrest.

Question 2. Fracture at which site affects the longitudinal growth of a bone?

A. Epiphyseal plate

B. Diaphysis

C. Epiphysis

D. Metaphysis

Correct answer: A

The longitudinal growth of long bones in children and adolescents occurs at the epiphyseal plate, also known as the growth plate or physis. This cartilaginous plate is situated between the epiphysis (the end of the bone) and the metaphysis. Growth occurs through a process of endochondral ossification, where cartilage cells within the plate proliferate, mature, and are eventually replaced by bone, thereby elongating the bone shaft (diaphysis). A fracture that involves the epiphyseal plate (a Salter-Harris fracture) can disrupt this delicate process. Damage to the proliferating chondrocytes can lead to premature cessation of growth, resulting in limb length discrepancy or angular deformities. Fractures of the diaphysis (Option B),

epiphysis (Option C), or metaphysis (Option D) that do not involve the growth plate do not typically interfere with the bone's longitudinal growth potential.

Question 3. Which mechanism or factor ensures that only one sperm fertilizes the ovum and prevents multiple sperm from entering?

A. Acrosome reaction

B. Cortical reaction

C. Zona reaction

D. Capacitation

Correct answer: B

The cortical reaction is the biological mechanism that ensures only one sperm fertilizes the ovum and prevents the entry of additional sperms, a condition known as polyspermy. After a sperm successfully penetrates the plasma membrane of the ovum, the egg immediately triggers this protective reaction.During the cortical reaction, small membrane-bound vesicles called cortical granules, which lie just beneath the ovum’s plasma membrane, release their contents into the space between the plasma membrane and the zona pellucida. These released enzymes cause chemical modifications in the zona pellucida, leading to its hardening and structural alteration.As a result, the zona pellucida becomes impermeable to other sperms. This modification prevents additional sperms from binding to or penetrating the egg surface. Thus, the cortical

Question 4. In an alcoholic patient who develops a wide-based gait and nystagmus following a road traffic accident, which cerebellar lobe is most likely involved?

A. Flocculonodular

B. Dentate

C. Anterior lobe

D. Vermis

Correct answer: C

The clinical signs of a wide-based gait (gait ataxia) and nystagmus are indicative of cerebellar dysfunction. In the context of chronic alcoholism, the most commonly affected part of the cerebellum is the anterior lobe, particularly its superior vermian portion. This area is responsible for coordinating movements and regulating posture of the limbs, especially the legs. Its degeneration due to the neurotoxic effects of alcohol leads to the characteristic unsteady, wide-based gait as the patient attempts to increase their stability. While the RTA is the acute event, the patient's underlying chronic alcoholism makes the anterior lobe particularly vulnerable and likely the source of these neurological signs. The flocculonodular lobe (Option A) is associated with truncal ataxia, while the dentate nucleus (Option B) is a deep nucleus involved in motor planning. The vermis (Option D) is involved in trunk control, but the anterior lobe is most classically associated with gait ataxia in alcoholism.

Question 5. Ptosis seen in Horner syndrome results from paralysis of which specific muscle?

A. Superior tarsal muscle

B. Orbitalis Click Here to Buy book on Amazon

C. Orbicularis oculi

D. Sphincter pupillae

Correct answer: A

Horner syndrome results from a disruption of the oculosympathetic pathway, leading to a triad of miosis, ptosis, and anhidrosis. The ptosis seen in this syndrome is typically mild (1-2 mm). This is because the main muscle responsible for eyelid elevation, the levator palpebrae superioris (innervated by CN III), remains functional. The mild droop is caused by paralysis of the superior tarsal muscle, also known as Müller's muscle. This is a small smooth muscle that receives sympathetic innervation and assists in maintaining eyelid elevation. Loss of this sympathetic tone causes the upper eyelid to droop slightly. The orbicularis oculi (Option C) is responsible for eyelid closure and is innervated by the facial nerve (CN VII). The sphincter pupillae (Option D) causes pupillary constriction and receives parasympathetic innervation. The orbitalis muscle (Option B) is another sympathetically innervated smooth muscle, and its paralysis can contribute to enophthalmos.

Question 6. Damage to which cranial nerve can lead to loss or absence of the gag reflex?

A. Cranial Nerve IX (Glossopharyngeal) and Cranial Nerve X (Vagus)

B. Cranial Nerve X (Vagus) and Cranial Nerve VII (Facial)

C. Cranial Nerve VII (Facial) and Cranial Nerve V (Trigeminal)

D. Cranial Nerve V (Trigeminal) and Cranial Nerve IX (Glossopharyngeal)

Correct answer: A

The gag reflex is a protective mechanism involving both sensory and motor pathways. The afferent (sensory) limb of the reflex is carried by the glossopharyngeal nerve (CN IX). It detects tactile stimulation of the soft palate, posterior pharyngeal wall, or tonsillar region. Once the stimulus is detected, the signal is sent to the brainstem. The efferent (motor) limb is primarily mediated by the vagus nerve

Question 7. A singer has difficulty producing high-pitched sounds, and examination reveals bowing of the right vocal cord. Injury to which muscle is most likely responsible for this finding?

A. Posterior cricoarytenoid

B. Lateral cricoarytenoid

C. Cricothyroid

D. Thyroarytenoid

Correct answer: C

The pitch of the voice is determined by the tension and length of the vocal cords. To produce high-pitched sounds, the vocal cords must be tensed and elongated. This action is the primary function of the cricothyroid muscle. It is the only intrinsic laryngeal muscle innervated by the external branch of the superior laryngeal nerve. Contraction of the cricothyroid muscle tilts the thyroid cartilage forward, thereby stretching the vocal cords. Paralysis of this muscle, as suggested by the bowing of the right vocal cord and the inability to reach high pitches, indicates a lesion of the right external superior laryngeal nerve. The posterior cricoarytenoid (Option A) abducts (opens) the cords, the lateral cricoarytenoid (Option B) adducts (closes) them, and the thyroarytenoid (Option D) shortens and relaxes the cords, lowering the pitch.

Question 8. Match the receptors with their correct function. 1.Ruffini corpuscleA.Vibration 2.Merkel cellsB.Sustained pres-sure 3.Pacinian corpuscleC.Stretching 4.Meissner's corpus-cleD.Fine touch

A. 1C 2B 3A 4D

B. 1D 2C 3B 4A

C. 1B 2A 3D 4C

D. 1C 2D 3B 4A

Correct answer: A

This question tests the specific functions of different cutaneous mechanoreceptors. (1)

Question 9. The membrane covering an omphalocele is formed from which embryological layer or tissue?

A. Amnion

B. Chorion

C. Mesoderm

D. Endoderm

Correct answer: A

An omphalocele is characterized by the herniation of abdominal viscera through a midline defect at the umbilicus, with the contents being covered by a protective sac. This sac is a bilaminar structure. The outer layer of the sac is composed of amnion, which is the innermost membrane of the placenta that encloses the embryo. The inner layer of the sac is the peritoneum. Between these two layers is Wharton's jelly. This covering distinguishes it from gastroschisis, where the herniated viscera are exposed directly to the amniotic fluid without a sac. The chorion (Option B) is the outermost fetal membrane and is not involved. Mesoderm (Option C) and endoderm (Option D) are embryonic germ layers that give rise to the organs themselves but not the specific outer covering of the omphalocele sac.

Question 10. In a patient who has fecal matter discharging from the umbilicus, what

is the most probable diagnosis?

A. Urachal fistula

B. Ileal diverticulum

C. Omphalocele

D. Gastroschisis

Correct answer: B

The discharge of fecal matter from the umbilicus indicates a patent connection between the intestine and the umbilicus, known as a vitelline fistula or omphalomesenteric duct fistula. This duct normally connects the midgut to the yolk sac in the embryo and obliterates by the seventh week of gestation. A persistent remnant of this duct on the intestinal side is known as Meckel's diverticulum, which is a type of ileal diverticulum. When the entire duct remains patent, it forms a fistula. Therefore, the underlying pathology for a vitelline fistula is a persistent ileal diverticulum connected to the umbilicus. A urachal fistula (Option A) connects the bladder to the umbilicus and would present with urine discharge. Omphalocele (Option C) and gastroschisis (Option D) are congenital abdominal wall defects, not fistulas presenting with discharge in this manner.

Question 11. What clinical effects or deficits result from a lesion involving Brodmann area 22?

A. Expressive aphasia

B. Receptive aphasia

C. Poor repetition of language

D. Poor naming

Correct answer: B

Brodmann area 22, in the posterior superior temporal gyrus of the dominant hemisphere, is functionally known as Wernicke's area. This area is paramount for the comprehension of language. A lesion, such as from a stroke, affecting this area results in receptive aphasia

Question 12. Which artery can be palpated posterior to the medial malleolus and anterior to the Achilles tendon?

A. Posterior tibial artery

B. Peroneal artery

C. Anterior tibial artery

D. Dorsalis pedis artery

Correct answer: A

The posterior tibial artery is the artery that can be palpated posterior to the medial malleolus and anterior to the Achilles tendon. It is one of the terminal branches of the popliteal artery, which divides into the anterior tibial artery and the posterior tibial artery in the leg.As the posterior tibial artery descends along the posterior compartment of the leg, it travels behind

the medial malleolus through a region known as the tarsal tunnel. At this point, the artery lies between the medial malleolus and the Achilles tendon, making it accessible for palpation of the posterior tibial pulse. Clinically, this pulse is important for assessing blood supply to the foot and detecting conditions such as peripheral arterial disease.The other options are incorrect. The peroneal (fibular) artery runs deeper in the posterior compartment and is not easily palpable. The anterior tibial artery passes to the anterior compartment of the leg and becomes the dorsalis pedis artery on the dorsum of the foot. The dorsalis pedis artery is palpated on the dorsum of the foot, not behind the medial malleolus.Therefore, the correct answer is posterior tibial artery.

Question 13. In a patient with sciatica who has tenderness of the hamstring muscles, which nerve supplies a hybrid muscle that is partially spared in this condition?

A. Femoral

B. Common peroneal nerve

C. Obturator

D. Tibial

Correct answer: B

Sciatica occurs due to irritation or compression of the sciatic nerve, which commonly causes pain along the posterior thigh and may affect the hamstring muscles. Most hamstring muscles—semitendinosus, semimembranosus, and the long head of biceps femoris—are supplied by the tibial division of the sciatic nerve.However, the biceps femoris is considered a hybrid muscle because its two heads receive different nerve supplies. The long head of the biceps femoris is supplied by the tibial division of the sciatic nerve, while the short head of the biceps femoris is supplied by the common peroneal (fibular) division of the sciatic nerve.In cases of sciatica affecting the tibial component, the muscles innervated by the tibial part may become painful or weak. However, the short head of the biceps femoris, supplied by the common peroneal nerve, may remain partially functional. Because of this dual innervation, the muscle is described as hybrid and can be partially spared in certain sciatic nerve injuries.Therefore, the nerve responsible for supplying the spared portion of this hybrid muscle is the common peroneal nerve.

Question 14. After lifting heavy weights, a patient develops pain radiating along the back of the thigh and leg. Involvement of which spinal nerve segment is most likely responsible for these symptoms?

A. L4

B. L5

C. S1

D. S2

Correct answer: C

Pain that radiates down the posterior aspect of the thigh and leg follows the dermatome of the S1 nerve root. This pattern is classic for sciatica caused by S1 radiculopathy. The most common cause is a herniated disc at the L5-S1 intervertebral level, which compresses the traversing S1 nerve root. Besides pain, S1 compression can cause sensory loss on the posterior leg and lateral aspect of the foot, weakness of plantar flexion (difficulty standing on tiptoes), and a diminished or absent ankle jerk reflex. Pain from L5 radiculopathy (Option B) typically radiates to the posterolateral thigh and leg down to the top of the foot and great toe. L4 radiculopathy (Option A) pain involves the anterior thigh and medial leg. The acute onset after lifting heavy weights is a typical history for disc herniation.

Question 15. Which anatomical location is the most frequent site for a congenital diaphragmatic hernia?

A. Central tendon

B. Posterolateral

C. Crural

D. Anterolateral

Correct answer: B

Congenital diaphragmatic hernia (CDH) is a birth defect where there is an opening in the diaphragm, allowing abdominal organs to move into the chest cavity. The vast majority of CDH cases occur in the posterolateral region of the diaphragm. This type is known as a Bochdalek hernia, and it results from the failure of the pleuroperitoneal fold to close during fetal development. Bochdalek hernias account for about 85-90% of all CDH cases and are most common on the left side. Anterolateral defects (Option D), known as Morgagni hernias, are much less frequent. Hernias through the central tendon (Option A) or esophageal hiatus (part of the crura, Option C) are also rare compared to the posterolateral location. The herniation can impede lung development, leading to life-threatening pulmonary hypoplasia.

Question 16. Loss of sensation over the lateral three and a half fingers along with thenar muscle wasting suggests injury to which nerve?

A. Median

B. Ulnar

C. Radial

D. Anterior interosseous nerve

Correct answer: A

This combination of symptoms is classic for a lesion of the median nerve, typically at the level of the wrist (e.g., carpal tunnel syndrome). The median nerve provides sensory innervation to the palmar aspect of the thumb, index finger, middle finger, and the lateral half of the ring finger (lateral 3 1/2 fingers). It also supplies motor function to the three thenar muscles (abductor pollicis brevis, flexor pollicis brevis, opponens pollicis) via its recurrent motor branch.

Chronic compression or injury to this nerve results in numbness and tingling in its sensory distribution and weakness, which over time leads to wasting or atrophy of the thenar eminence. The ulnar nerve (Option B) supplies the medial 1 1/2 fingers. The radial nerve (Option C) supplies sensation to the dorsum of the hand. The anterior interosseous nerve (Option D) is a pure motor branch and does not supply skin sensation.

Question 17. A patient with a nerve injury is unable to form an O shape using the thumb and index finger. Damage to which muscle most likely explains this finding?

A. Opponens pollicis

B. Abductor pollicis brevis

C. Flexor pollicis brevis

D. Palmar interossei

Correct answer: A

The ability to form a perfect O by touching the tips of the thumb and index finger requires fine motor control and intact flexion at the interphalangeal joint of the thumb and the distal interphalangeal joint of the index finger. This is the classic test for the anterior interosseous nerve (AIN), a branch of the median nerve, which supplies flexor pollicis longus and flexor digitorum profundus to the index finger.

Question 18. Which type of tongue papillae lack taste buds?

A. Fungiform

B. Filiform MEDINK CHAPTER 02_PHYSIOLOGY

C. Circumvallate

D. Foliate

Correct answer: B

FiliformThe human tongue has four types of papillae. Three of these—fungiform, circumvallate, and foliate—contain taste buds and are involved in gustation. The filiform papillae are the exception. They are the most numerous papillae, appearing as small, conical projections that give the tongue its rough, abrasive texture. Their primary function is mechanical, related to friction for gripping and manipulating food during mastication, and they play a role in the sensation of touch on the tongue. Unlike the other papillae, filiform papillae are heavily keratinized and completely lack taste buds. Fungiform papillae (Option A) are scattered on the anterior tongue. Circumvallate papillae (Option C) form a V-shape at the back. Foliate papillae (Option D) are on the lateral borders. All three possess taste buds.

Question 19. Which type of receptor is responsible for the perception of sour taste?

A. T1R1

B. T1R2

C. T1R3

D. TRPP3

Correct answer: D

The sensation of sour taste is triggered by acidic substances, specifically by the concentration of hydrogen ions (). While the exact mechanism is complex, a key receptor involved is an ion channel belonging to the transient receptor potential (TRP) family. The polycystic kidney disease 2-like 1 protein (PKD2L1), also known as TRPP3, is part of a channel complex that acts as a proton () sensor on the surface of Type III taste receptor cells. Activation of this channel by acids leads to an influx of positive ions, depolarization of the cell, and the subsequent signaling of a sour taste to the brain. The T1R family of receptors (Options A, B, C) are G-protein coupled receptors responsible for sweet taste (T1R2+T1R3 heterodimer) and umami taste (T1R1+T1R3 heterodimer).

Question 20. Which of the following options correctly describes the function of receptors?

A. Ruffini corpuscle - sustained pressure

B. Merkel cells slow vibration

C. Meissner's corpuscle - stretch

D. Pacinian corpuscle - fast vibration

Correct answer: D

This question tests knowledge of cutaneous mechanoreceptors. Pacinian corpuscles are rapidly adapting receptors that are highly specialized to detect high-frequency vibration and deep pressure changes, making statement (D) correct.Let's analyze the incorrect options. (A) Ruffini corpuscles are slowly adapting receptors that are most sensitive to skin stretch and torque, not just sustained pressure. (B) Merkel cells are slowly adapting receptors that respond to sustained pressure and texture, not slow vibration. (C) Meissner's corpuscles are rapidly adapting receptors that detect light touch, slip, and low-frequency vibration, not stretch. Therefore, the only accurately matched pair is the Pacinian corpuscle with fast vibration.

Question 21. In a patient who develops phantom limb pain after amputation of the right limb, what finding is typically seen on a PET scan?

A. Expansion of somatosensory fibers for the hand into neighboring areas

B. Neighboring fibers of the somatosensory area extending into the right hand area

C. Expansion of right sensory cortex

D. Expansion of left sensory cortex

Correct answer: B

Phantom limb pain is a phenomenon of central nervous system plasticity. After an amputation, the area of the somatosensory cortex that previously received input from the amputated limb (in this case, the right limb's representation in the left somatosensory cortex) becomes deafferented, meaning it no longer receives sensory signals. Numbering studies, such as PET

scans, have shown that this silent cortical area does not remain inactive. Instead, it undergoes reorganization. Cortical representations from

Question 22. By which mechanism does caffeine interfere with normal sleep?

A. Blocks adenosine action and promotes wakefulness

B. Activates locus coeruleus & promotes wakefulness

C. No role in maintaining wakefulness

D. Activates histamine release and prevents sleep

Correct answer: A

Caffeine's primary mechanism for promoting wakefulness is its action as a competitive antagonist at adenosine receptors, specifically the A1 and A2A subtypes. Adenosine is a neuro-motor that accumulates in the brain throughout the day, promoting sleepiness by inhibiting wakefulness-promoting neurons. By binding to adenosine receptors without activating them, caffeine effectively blocks the sleep-promoting action of adenosine. This leads to increased neuronal activity and the release of other neurotransmitters like dopamine and norepinephrine, resulting in heightened alertness and a delay in sleep onset. While caffeine can have downstream effects on other systems, its direct antagonism of adenosine is the principal reason it impairs sleep. Option B is a downstream effect, not the primary mechanism. Option C is incorrect. Option D is not the primary mechanism of action for caffeine.

Question 23. Which ion plays the primary role in establishing the resting membrane potential?

A. Potassium (K+)

B. Calcium (Ca2+)

C. Sodium (Na+)

D. Chloride (Cl-)

Correct answer: A

The resting membrane potential (RMP) of a neuron, typically around -70 mV, is primarily established by the differential permeability of the cell membrane to various ions and the concentration gradients of these ions. At rest, the neuronal membrane is significantly more permeable to potassium ions () than to other ions like sodium () or chloride . This high permeability is due to the presence of numerous open leak potassium channels. Because the concentration of is much higher inside the cell than outside, ions tend to diffuse out of the cell down their concentration gradient. As these positively charged ions leave the cell, they make the inside of the membrane negative relative to the outside. This outflow continues until the electrical gradient pulling back into the cell balances the concentration gradient pushing it out, establishing the equilibrium potential for potassium, which is very close to the RMP.

Question 24. Sequence the events in neuromuscular action potential conduction :1.

Sodium channels open in the end plate2. Calcium enters at the nerve terminal3. Release of acetylcholine

A. 123""

B. 132""

C. 321""

D. 231""

Correct answer: D

The transmission of a signal from a motor neuron to a muscle fiber at the neuromuscular junction follows a specific sequence. First, an action potential travels down the motor neuron axon to the presynaptic terminal. This depolarization opens voltage-gated calcium () channels, causing an influx of calcium into the nerve terminal (Event 2). The increase in intracellular calcium triggers the fusion of synaptic vesicles containing the neurotransmitter acetylcholine (ACh) with the presynaptic membrane, leading to its release into the synaptic cleft (Event 3). ACh then diffuses across the cleft and binds to nicotinic ACh receptors on the motor end plate of the muscle fiber. This binding opens ligand-gated ion channels, causing a large influx of

Question 25. After developing sunburn, a woman experiences pain when lukewarm water (40 °C) touches her back during a shower. Which receptors are stimulated by this temperature, and why does it produce a painful sensation?

A. Thermal nociceptors & nociceptive pain

B. Thermal nociceptors & allodynia

C. Innocuous thermal receptors and hyperalgesia

D. Innocuous thermal receptors and allodynia

Correct answer: D

Sunburn causes tissue damage and inflammation, which leads to peripheral sensitization of nerve endings. The sensation described is allodynia, which is the perception of pain from a stimulus that does not normally provoke pain. Lukewarm water (40°C) is a non-painful thermal stimulus that is typically detected by innocuous thermal receptors (warmth receptors), not thermal nociceptors, which have a higher activation threshold (typically >43°C). However, due to the sensitization from the sunburn, the threshold for activating pain pathways is lowered. As a result, the signals from the innocuous thermal receptors are interpreted by the central nervous system as painful. Hyperalgesia (Option C) is an increased pain response to a normally painful stimulus, which is different from allodynia. Activating thermal nociceptors (Options A and B) would imply the stimulus itself was in the noxious range, which 40°C water is not.

Question 26. Which receptor plays a key role in improving insulin resistance in type 2 diabetes mellitus through regular exercise and physical activity?

A. GLUT 1

B. GLUT 2

C. GLUT 3

D. GLUT 4

Correct answer: D

GLUT 4 is the primary glucose transporter responsible for glucose uptake into muscle and

Question 27. A patient shows features of dermatitis, dementia, and declining cognitive function. Deficiency of which micronutrient is the most likely cause?

A. Niacin

B. Thiamine

C. Tryptophan

D. Retinol

Correct answer: A

The classic triad of dermatitis, dementia, and diarrhea is characteristic of pellagra, a disease

Question 28. Deficiency of which micronutrient leads to anemia, bleeding gums, a white Frenkel line on X-ray, neutropenia, and hypo pigmentation?

A. Copper

B. Iron

C. Zinc

D. Fluoride

Correct answer: A

This constellation of symptoms is characteristic of copper deficiency. Copper is an essential cofactor for several enzymes. Its deficiency can lead to a microcytic or normocytic anemia that is unresponsive to iron, due to copper's role in iron metabolism (via ceruloplasmin). Neutropenia is also a common and early hematological sign. Hypo pigmentation of the skin and hair can occur because tyrosinase, the enzyme responsible for melanin production, is copper-dependent. Skeletal abnormalities, including osteoporosis and metaphyseal changes on X-ray similar to scurvy (like the white line of Frenkel), can also be seen. Bleeding gums are less specific but can occur. Iron deficiency (Option B) causes microcytic anemia but not typically neutropenia or these specific X-ray findings. Zinc deficiency (Option C) is associated with skin rashes, hair loss, and immune dysfunction.

Question 29. In a patient with phenylketonuria who has normal phenylalanine hydroxylase activity, deficiency of which substance is responsible for the condition?

A. Tyrosine transaminase

B. Dopa decarboxylase

C. Tyrosine hydroxylase

D. Dihydrobiopterin reductase

Correct answer: D

Classic phenylketonuria (PKU) is caused by a deficiency of the enzyme phenylalanine hydroxylase (PAH), which converts phenylalanine to tyrosine. However, a small percentage of patients with hyperphenylalaninemia have normal PAH levels. This is known as atypical or malignant PKU. In these cases, the defect lies in the synthesis or recycling of the essential cofactor for PAH, tetrahydrobiopterin (BH4). The enzyme dihydrobiopterin reductase (DHPR) is responsible for regenerating BH4 from its oxidized form, dihydrobiopterin (BH2). A deficiency in DHPR leads to a lack of functional BH4, which not only impairs the PAH enzyme but also tyrosine hydroxylase and tryptophan hydroxylase, which are required for the synthesis of neurotransmitters like dopamine and serotonin. This results in a more severe neurological phenotype than classic PKU.

Question 30. A 5-year-old girl becomes unconscious after exposure to a shampoo containing rotenone. Which enzyme is inhibited by this chemical?

A. NADH dehydrogenase

B. Succinate dehydrogenase

C. Cytochrome C

D. Cytochrome oxidase

Correct answer: A

Rotenone is a pesticide and insecticide that is a potent inhibitor of the mitochondrial electron transport chain (ETC). Specifically, rotenone blocks the transfer of electrons from NADH dehydrogenase (also known as Complex I) to coenzyme Q (ubiquinone). By inhibiting Complex I, rotenone effectively halts the entire process of ATP production via oxidative phosphorylation that relies on electrons from

Question 31. In a patient receiving phenobarbitone therapy, which complex of the electron transport chain is inhibited by this drug?

A. Complex 1

B. Complex II

C. Complex III

D. Complex IV

Correct answer: A

Barbiturates, such as phenobarbitone and amobarbital, are known inhibitors of the mitochondrial electron transport chain. Similar to rotenone, they act by blocking the electron transfer within Complex I (NADH dehydrogenase). They specifically inhibit the transfer of electrons from the iron-sulfur centers within Complex I to ubiquinone (coenzyme Q). This inhibition disrupts the flow of electrons originating from NADH, thereby reducing the proton gradient across the inner mitochondrial membrane and severely impairing ATP synthesis through oxidative phosphorylation. This action contributes to the central nervous system depression seen with barbiturate overdose. The other complexes (II, III, and IV) are not directly

inhibited by phenobarbitone, although the overall function of the chain is compromised due to the block at Complex I.

Question 32. Which of the following substances are metabolites produced during methanol poisoning?

A. Formic acid + formaldehyde

B. Formic acid + Lactic acid

C. Glycolic acid + Oxalic acid

D. Oxalic acid + Lactic acid

Correct answer: A

Methanol poisoning occurs when methanol (methyl alcohol) is ingested and metabolized in the body into toxic compounds. Methanol itself is relatively less toxic, but its metabolites formed in the liver are highly harmful and responsible for the clinical manifestations of poisoning.The metabolism of methanol mainly occurs in the liver through the enzyme alcohol dehydrogenase. First, methanol is oxidized to formaldehyde. This intermediate compound is then rapidly converted by the enzyme aldehyde dehydrogenase into formic acid (formate).Formic acid is the most toxic metabolite and is responsible for metabolic acidosis, optic nerve damage, and visual disturbances, which are classic features of methanol poisoning. Accumulation of formic acid inhibits mitochondrial cytochrome oxidase, leading to impaired cellular respiration and tissue hypoxia. Severe cases can lead to blindness, central nervous system depression, and death.The other options represent metabolites of different toxic alcohols. For example, glycolic acid and oxalic acid are metabolites of ethylene glycol poisoning, not methanol.Therefore, the primary toxic metabolites produced during methanol poisoning are formaldehyde and formic acid, making Option (A) the correct answer.

Question 33. A patient with elevated triglycerides containing long-chain fatty acids presents with fatigue, and muscle biopsy reveals lipid vacuole accumulation. What is the most likely diagnosis?

A. Carnitine deficiency

B. Fatty acid synthase defect

C. Lipoprotein lipase (LPL) defect

D. LDL defect

Correct answer: A

The clinical picture of muscle fatigue, high triglycerides, and lipid vacuoles in a muscle biopsy points to a defect in the mitochondrial beta-oxidation of long-chain fatty acids (LCFAs). LCFAs are the primary fuel source for skeletal muscle during fasting and prolonged exercise. To be oxidized in the mitochondria, LCFAs must first be transported across the inner mitochondrial membrane.

Question 34. The presence of xanthomas over the Achilles tendon in a patient is most suggestive of which underlying diagnosis?

A. Familial hypercholesterolemia

B. Tangier's disease

C. Familial hyperchylomicronemia

D. Familial dysbetalipoproteinemia

Correct answer: A

The presence of tendon xanthomas, particularly on the Achilles tendon or extensor tendons of the hands, is a pathognomonic sign of Familial Hypercholesterolemia (FH). FH is an autosomal dominant genetic disorder caused by mutations in the LDL receptor gene, leading to impaired clearance of Low-Density Lipoprotein (LDL) from the circulation. This results in markedly elevated levels of LDL cholesterol from birth. The excess LDL cholesterol deposits in various tissues, including the skin (forming xanthelasmas), arteries (leading to premature atherosclerosis and coronary artery disease), and tendons (forming xanthomas). Familial hyperchylomicronemia (Type I, Option C) presents with eruptive xanthomas and pancreatitis, not tendon xanthomas. Familial dysbetalipoproteinemia (Type III, Option D) is associated with tuberous and palmar xanthomas.

Question 35. A patient presents with multiple tendon xanthomas and markedly elevated serum cholesterol (398 mg/dL) and LDL levels (220 mg/dL). What is the most likely underlying defect?

A. Lipoprotein lipase deficiency

B. LDL receptor defect

C. Apo E defect

D. LCAT deficiency

Correct answer: B

The combination of tendon xanthomas and significantly elevated total cholesterol and LDL cholesterol levels is the classic presentation of Familial Hypercholesterolemia (FH). The underlying cause of FH is most commonly a genetic defect in the LDL receptor. These receptors are located on the surface of liver cells and are responsible for removing LDL particles from the bloodstream. A deficiency or dysfunction of these receptors leads to impaired LDL clearance, resulting in its accumulation in the plasma. This chronic high level of LDL-C leads to cholesterol deposition in tendons, forming xanthomas, and in arterial walls, causing premature atherosclerosis. Lipoprotein lipase deficiency (Option A) causes hyperchylomicronemia (Type I hyperlipidemia) with high triglycerides, not high LDL. Apo E defect (Option C) causes dysbetalipoproteinemia (Type III). LCAT deficiency (Option D) affects HDL metabolism.

Question 36. A patient presents to the emergency department with severe abdominal pain and has a markedly elevated serum triglyceride level of 1500 mg/dL.

What is the most likely underlying defect responsible for this condition?

A. Apo B-48

B. Apo B-100

C. Apo C-II

D. LDL receptor

Correct answer: C

Severe abdominal pain in the context of extremely high serum triglyceride levels (hypertriglyceridemia) is highly suggestive of

Question 37. A 13-year-old boy presents with jaundice, fatigue, muscle rigidity, tremors, behavioral changes, hepatosplenomegaly, and a Kayser–Fleischer ring. Which test is definitive for confirming the diagnosis?

A. Urinary copper

B. Serum ceruloplasmin

C. Hepatic parenchymal copper concentration

D. Slit lamp examination

Correct answer: C

The clinical presentation of hepatic dysfunction, neurological symptoms (tremors, stiffness), psychiatric changes, and the pathognomonic Kayser-Fleischer rings (copper deposits in Descemet's membrane of the cornea) is classic for Wilson's disease. This is an autosomal recessive disorder of copper metabolism. While low serum ceruloplasmin (Option B) and high24-hour urinary copper excretion (Option A) are highly suggestive and part of the initial workup, they can sometimes be normal, especially in early or atypical cases. The slit lamp examination (Option D) confirms the Kayser-Fleischer rings but they can be absent in some patients, particularly those with purely hepatic disease. The gold standard and most definitive diagnostic test for Wilson's disease is a liver biopsy to measure the hepatic parenchymal copper concentration. A value >250 µg/g dry

Question 38. A patient’s relatives inform the treating doctor via social media that the urinary coproporphyrin test is positive. What is the most likely underlying cause or diagnosis suggested by this finding?

A. Lead poisoning

B. Asbestosis

C. Silicosis

D. Mercury poisoning

Correct answer: A

The presence of elevated urinary coproporphyrin III is a key biochemical marker for lead poisoning. Lead interferes with the heme synthesis pathway by inhibiting several key enzymes. One of these enzymes is coproporphyrinogen oxidase. Inhibition of this enzyme leads to the

accumulation of its substrate, coproporphyrinogen III, which is then oxidized to coproporphyrin III and excreted in the urine in large amounts. Another enzyme inhibited by lead is ALA dehydratase, leading to increased urinary aminolevulinic acid (ALA), which is an even more sensitive marker. Therefore, a positive urinary coproporphyrin test, especially in a context with potential exposure, should raise strong suspicion for lead poisoning. Asbestosis (Option B) and silicosis (Option C) are pneumoconioses and do not cause this biochemical abnormality. Mercury poisoning (Option D) has different toxic manifestations.

Question 39. A newborn presents with poor feeding, vomiting, metabolic acidosis, and cataracts. Benedict's test of the urine is positive, but glucose is absent in the urine. Which enzyme defect is responsible for this condition?

A. Galactose 1-phosphate uridyl transferase

B. Fructokinase

C. Lactase

D. Sucrase

Correct answer: A

The clinical presentation of a neonate with failure to thrive, vomiting, hepatomegaly, metabolic acidosis, and cataracts after starting milk feeds is classic for classic galactosemia.

Question 40. A patient with a history of binge alcohol consumption presents with convulsions, altered mental status, and a plasma glucose level of 45 mg/dL. What is the most appropriate immediate treatment?

A. Thiamine

B. 25% Dextrose

C. Thiamine followed by Dextrose

D. Fomepizole

Correct answer: C

This patient presents with alcoholic hypoglycemia and altered sensorium, a medical emergency. Chronic alcoholics are often malnourished and have a high risk of thiamine (Vitamin B1) deficiency. Thiamine is a crucial coenzyme for carbohydrate metabolism, including the enzyme pyruvate dehydrogenase which converts pyruvate to acetyl-CoA. Administering a glucose load (dextrose) without first replenishing thiamine can precipitate or worsen Wernicke's encephalopathy, a severe neurological condition. The large glucose load increases the metabolic demand for thiamine, depleting the already low stores and causing neurological damage. Therefore, the standard and critical protocol is to administer thiamine first, to ensure metabolic pathways are competent, followed by dextrose to correct the hypoglycemia. Giving only dextrose (Option B) is dangerous. Giving only thiamine (Option A) would not correct the life-threatening hypoglycemia. Fomepizole (Option

Question 41. A patient develops a skin rash that worsens with exposure to sunlight. Which DNA repair mechanism is defective or involved in this condition?

A. Nucleotide excision repair

B. Base excision repair

C. Mismatch repair

D. Double stranded DNA break repair

Correct answer: A

Extreme photosensitivity, a skin rash exaggerated by sun exposure, is the hallmark symptom of Xeroderma Pigmentosum (XP). This is a rare autosomal recessive genetic disorder where the ability to repair DNA damage caused by ultraviolet (UV) radiation is deficient. UV light primarily causes the formation of pyrimidine dimers (specifically, thymine dimers) in DNA, which distort the double helix and block replication and transcription. The primary mechanism for repairing such bulky, helix-distorting lesions is Nucleotide Excision Repair (NER). In XP, one of the several proteins involved in the NER pathway is defective. This failure to repair UV-induced damage leads to a massively increased risk of skin cancers. Base excision repair (Option B) corrects single-base damage. Mismatch repair (Option C) corrects errors made during DNA replication. Double-stranded break repair (Option D) fixes breaks in both DNA strands.

Question 42. A 45-year-old patient with homocystinuria presents with joint pain and muscle weakness. Supplementation with which vitamin is required for treatment?

A. Vitamin B6

B. Vitamin B12

C. Vitamin B7

D. Vitamin B1

Correct answer: A

Homocystinuria is a group of inherited metabolic disorders characterized by high levels of homocysteine in the blood and urine. The most common cause is a deficiency of the enzyme

Question 43. A patient with a long history of poor nutrition presents with follicular hyperkeratosis over the extensor surface of the forearm. What is the most likely diagnosis?

A. Phrynoderma

B. Eruptive xanthoma

C. Darier's disease

D. Folliculitis

Correct answer: A

Phrynoderma, meaning toad skin, is a form of follicular hyperkeratosis characterized by horny, spiny papules at the site of hair follicles. The lesions are typically found on the extensor surfaces of the extremities, particularly the elbows, knees, forearms, and thighs. This condition

is strongly associated with severe nutritional deficiencies, classically with a deficiency of Vitamin A. It can also be seen in deficiencies of Vitamin E, B-complex vitamins, and essential fatty acids. Given the patient's history of neglecting nutrition and the specific clinical finding of follicular hyperkeratosis on the extensor forearm, phrynoderma is the most fitting diagnosis. Eruptive xanthomas (Option B) are yellow papules associated with hypertriglyceridemia. Darier's disease (Option C) is a genetic disorder causing warty papules in seborrheic areas. Folliculitis (Option D) is an infection or inflammation of the hair follicles, typically presenting with pustules or erythematous papules.

Question 44. A patient presents with severe abdominal pain and raised lipase levels, and imaging reveals a stone in the common bile duct. Which enzyme level is most likely to be elevated in this condition?

A. GGT

B. LDH

C. ALT

D. AST

Correct answer: A

The patient's presentation of severe abdominal pain and elevated lipase is diagnostic of acute pancreatitis. The presence of a stone in the common bile duct (choledocholithiasis) is a common cause of gallstone pancreatitis, as the stone can obstruct the pancreatic duct at the ampulla of Vater. This obstruction also leads to cholestasis, which is the impairment of bile flow. Gamma-glutamyl transferase (GGT) is an enzyme found in hepatocytes and biliary epithelial cells. It is a very sensitive marker for cholestasis and biliary tract disease. When the bile ducts are obstructed, GGT is released into the bloodstream, leading to significantly elevated levels. While ALT and AST (Options C and D) may also be elevated due to associated liver inflammation (cholestatic hepatitis), GGT is more specific for biliary pathology and is typically the most markedly elevated enzyme in obstructive jaundice and cholestasis. LDH (Option B) is a non-specific marker of tissue damage.

Question 45. Use of methotrexate leads to decreased synthesis of which substance?

A. TMP

B. CMP

C. GMP

D. AMP

Correct answer: A

Methotrexate is a folate antagonist that competitively inhibits the enzyme dihydrofolate reductase (DHFR). DHFR is essential for reducing dihydrofolate to tetrahydrofolate (THF). THF is a crucial coenzyme that acts as a one-carbon donor in various metabolic pathways, including the synthesis of purines

Question 46. A patient is found to have a cerebellar mass along with a renal tumor and reports a family history of similar illnesses. Which genetic mutation is most likely present in this family?

A. VHL

B. NF

C. TSC

D. Li-Fraumeni syndrome

Correct answer: A

The triad of a cerebellar mass (specifically a hemangioblastoma), a renal tumor (specifically clear cell renal cell carcinoma), and a positive

Question 47. A 0-year-old football player is brought to the emergency department after a sudden collapse due to cardiac arrest. A histological image is provided. Based on the microscopic findings shown, what is the most likely cause of death?

A. Hypertrophic Obstructive Cardiomyopathy (HOCM)

B. Dilated Cardiomyopathy (DCM)

C. Restrictive Cardiomyopathy (RCM)

D. Arrhythmogenic cardiomyopathy

Correct answer: A

Sudden cardiac death in a young athlete is most commonly caused by an underlying, often undiagnosed, cardiac condition. The histological image shows the pathognomonic features of Hypertrophic Cardiomyopathy (HCM), which include cardiomyocyte hypertrophy, extensive myofiber disarray (where the muscle cells are arranged in a chaotic, whorled pattern instead of being parallel), and interstitial fibrosis. HCM is a genetic disorder caused by mutations in genes encoding sarcomeric proteins, leading to unexplained left ventricular hypertrophy. This hypertrophy and disarray create a substrate for fatal ventricular arrhythmias (like ventricular fibrillation), which are the usual cause of sudden death, especially during or after intense

Question 48. A child presents with pruritic skin lesions along with diarrhea and has been advised to follow a gluten-free diet. What is the most likely underlying etiology of this condition?

A. Celiac disease

B. Whipple's disease

C. Crohn's disease

D. Dermatitis herpetiformis

Correct answer: A

Celiac disease is an autoimmune disorder triggered by ingestion of gluten, a protein found in wheat, barley, and rye. It leads to immune-mediated damage of the small intestinal mucosa, particularly the villi, resulting in malabsorption.In children, common symptoms include chronic

diarrhea, abdominal pain, bloating, weight loss, and nutritional deficiencies. A distinctive extraintestinal manifestation is pruritic skin lesions, known as dermatitis herpetiformis, which occur due to IgA deposition in the dermal papillae. This skin condition is strongly associated with celiac disease and improves with a gluten-free diet.Because gluten triggers the immune response that damages the intestinal lining, the primary treatment is lifelong avoidance of gluten-containing foods. Following a gluten-free diet helps restore the intestinal villi and reduces both gastrointestinal and skin symptoms.The other options are less consistent with the scenario. Whipple's disease is a rare bacterial infection, Crohn’s disease is an inflammatory bowel disease not specifically related to gluten, and dermatitis herpetiformis is actually a cutaneous manifestation of celiac disease rather than the underlying cause.Therefore, the most likely underlying etiology is celiac disease.

Question 49. Which specific antibody is most commonly associated with celiac disease?

A. Anti-TTG (Tissue Transglutaminase)

B. ANCA (Anti-Neutrophil Cytoplasmic Antibodies)

C. ASCA (Anti-Saccharomyces cerevisiae Antibodies)

D. Anti-gliadin

Correct answer: A

The serological diagnosis of Celiac Disease relies on the detection of highly specific autoantibodies. The most sensitive and specific antibody test currently used is the IgA anti-tissue transglutaminase (anti-TTG) antibody test. Tissue transglutaminase is the autoantigen in celiac disease; it deamidates gliadin (a component of gluten), which increases its immunogenicity and triggers the autoimmune response. IgA anti-endomysial antibodies (EMA) are also highly specific but the test is more subjective. While anti-gliadin antibodies (AGA) (Option D) were used in the past, they have lower sensitivity and specificity and are no longer recommended for primary diagnosis. ANCA (Option B) is associated with vasculitides like granulomatosis with polyangiitis. ASCA (Option C) is associated with Crohn's disease. Therefore, anti-TTG is the premier antibody marker for celiac disease.

Question 50. In a patient with thalassemia, which viral infection is known to target erythroid progenitor cells and can precipitate aplastic anemia?

A. CMV (Cytomegalovirus)

B. EBV (Epstein-Barr Virus)

C. Parvovirus B19

D. Hepatitis C virus (HCV)

Correct answer: C

Patients with chronic hemolytic anemias, such as thalassemia and sickle cell disease, rely on a hyperactive bone marrow to compensate for the rapid destruction of red blood cells. Parvovirus

B19 has a unique tropism for erythroid progenitor cells (the precursors to red blood cells) in the bone marrow. Infection with this virus leads to the lysis of these progenitor cells, causing a temporary cessation of red blood cell production (erythropoiesis). In a person with normal red cell survival, this 7-10 day pause is clinically insignificant. However, in a thalassemia patient with a shortened red cell lifespan, this abrupt halt in production, known as a transient aplastic crisis, leads to a rapid and severe drop in hemoglobin levels, which can be life-threatening. The other viruses listed (CMV, EBV, HCV) can cause bone marrow suppression

Question 51. A patient presents with hepatosplenomegaly, abdominal pain, and a markedly elevated white blood cell count exceeding 0,00/mm³. Which underlying gene abnormality is most likely responsible for these findings, and what is the most probable diagnosis?

A. t(9 :22)

B. Del 1q

C. t(15 :17)

D. Del 3q

Correct answer: A

No explanation is available for this recall question yet.

Question 52. A male patient diagnosed with acute respiratory distress syndrome (ARDS) is not responding to oxygen therapy. What role does interleukin- (IL-) play in the pathogenesis of ARDS?

A. Endothelial cell activation

B. Recruitment of neutrophils

C. Macrophage activation

D. Promote surfactant production

Correct answer: B

Acute Respiratory Distress Syndrome (ARDS) is a form of acute, diffuse, inflammatory lung injury characterized by severe hypoxemia and bilateral pulmonary infiltrates. The pathophysiology involves an uncontrolled inflammatory response within the lungs. A key event is the massive infiltration of neutrophils into the interstitium and alveolar spaces. Interleukin-8 (IL-8), also known as CXCL8, is a potent neutrophil chemoattractant and activator. It is released by activated alveolar macrophages and epithelial cells early in the inflammatory cascade. The high levels of IL-8 in the alveolar fluid of ARDS patients create a strong chemotactic gradient that is primarily responsible for the recruitment of neutrophils from the circulation into the lung tissue. These recruited neutrophils then release proteases, reactive oxygen species, and other inflammatory mediators that damage the

Question 53. A patient presents with respiratory distress and is diagnosed with

panacinar emphysema. Deficiency of which substance is most likely responsible for this condition?

A. Alpha-1 antitrypsin MEDINK CHAPTER 04_PATHOLOGY

B. Surfactant

C. Albumin

D. Type II pneumocytes

Correct answer: A

Alpha-1 antitrypsinEmphysema is characterized by the permanent enlargement of airspaces distal to the terminal bronchioles, accompanied by the destruction of their walls. Panacinar (or panlobular) emphysema, which affects the entire acinus uniformly and is most severe in the lower lobes of the lungs, is the classic form associated with alpha-1 antitrypsin (AAT) deficiency. AAT is a protease inhibitor produced by the liver that circulates in the blood. Its primary function in the lung is to protect the elastic tissue of the alveolar walls from destruction by proteases, particularly neutrophil elastase, which is released by neutrophils during inflammation. In AAT deficiency, this protective shield is absent, leading to unchecked elastase activity and progressive destruction of the lung parenchyma. Centriacinar emphysema, in contrast, is typically associated with smoking. Surfactant (Option B) deficiency causes neonatal respiratory distress syndrome.

Question 54. Which of the following statements accurately describes paroxysmal nocturnal hemoglobinuria (PNH)?

A. Flow cytometry is the best investigation

B. Sucrose lysis test is used for the confirmation

C. The most common cause of death is heart failure

D. It is an inherited disorder

Correct answer: A

Paroxysmal Nocturnal Hemoglobinuria (PNH) is a rare, acquired (not inherited, so D is incorrect) clonal hematopoietic stem cell disorder. It is caused by a somatic mutation in the PIGA gene, which leads to the absence of glycosylphosphatidylinositol (GPI)-anchored proteins on the surface of blood cells. These missing proteins include CD55 and CD59, which protect cells from complement-mediated destruction. The gold standard and best investigation for diagnosing PNH is flow cytometry. This test can precisely detect and

Question 55. A patient presents with pulmonary hemorrhage and tests positive for p-ANCA, with involvement of medium-sized blood vessels. What is the most likely diagnosis?

A. Churg-Strauss syndrome

B. Microscopic polyangiitis

C. Wegener granulomatosis

D. Polyarteritis nodosa (PAN)

Correct answer: B

This question describes a case of ANCA-associated vasculitis. Microscopic polyangiitis (MPA) is a necrotizing vasculitis that primarily affects small vessels (capillaries, venules, arterioles), though medium-sized vessels can be involved. Its classic presentation involves necrotizing glomerulonephritis and pulmonary capillaritis, which manifests as pulmonary hemorrhage. A key laboratory finding in MPA is the presence of perinuclear anti-neutrophil cytoplasmic antibodies (P-ANCA), which are typically directed against the antigen myeloperoxidase (MPO-ANCA). Churg-Strauss syndrome (EGPA, Option A) also is often P-ANCA positive but is distinguished by a history of asthma and prominent eosinophilia. Wegener's granulomatosis (GPA, Option C) is characterized by granulomatous inflammation of the respiratory tract and is strongly associated with C-ANCA (PR3-ANCA). Polyarteritis nodosa (PAN, Option D) affects medium-sized vessels but is ANCA-negative and typically spares the lungs.

Question 56. Which of the following findings is most commonly seen on laboratory investigations in a patient with iron deficiency anemia (IDA)?

A. Increased serum ferritin

B. Decreased transferrin saturation

C. Increased serum iron

D. Normal total iron-binding capacity (TIBC) Click Here to Buy book on Amazon MEDINK CHAPTER 04_PATHOLOGY

Correct answer: B

Iron deficiency anemia (IDA) is characterized by the depletion of the body's iron stores. This leads to a distinct pattern on iron studies. Serum ferritin is a measure of stored iron, so in IDA, it is the first marker to fall and will be decreased, not increased (Option A is incorrect). Total iron-binding capacity (TIBC) is an indirect measure of transferrin, the protein that transports iron. The liver increases transferrin production in an attempt to capture more iron, so TIBC is increased, not normal (Option D is incorrect). Serum iron measures the amount of iron circulating in the blood, which will be low in IDA (Option C is incorrect). Transferrin saturation is the ratio of serum iron to TIBC (Serum Iron / TIBC × 100%). Since serum iron is low and TIBC is high, the resulting saturation percentage is significantly decreased, typically to less than 15%. This is a hallmark of IDA.

Question 57. An adult woman presents with pallor and fatigue, and laboratory investigations reveal low hemoglobin, reduced serum iron, low ferritin levels, decreased transferrin saturation, and increased total iron-binding capacity. What is the most likely diagnosis?

A. Iron Deficiency Anemia (IDA)

B. Anemia of Chronic Disease

C. Hemolytic Anemia

D. Thalassemia

Correct answer: A

The pattern of laboratory results provided is the classic and definitive profile for Iron Deficiency Anemia (IDA). The low hemoglobin confirms anemia. The low serum ferritin indicates that the body's iron stores are depleted. The low serum iron shows there is insufficient iron in circulation. The increased Total Iron-Binding Capacity (TIBC) reflects the liver's compensatory response of producing more transferrin protein to try and bind more iron from the diet. Finally, the low transferrin saturation (the percentage of transferrin that is actually carrying iron) is a direct consequence of low iron and high TIBC. In contrast, Anemia of Chronic Disease (Option B) typically presents with low serum iron but normal or increased ferritin (as it's an acute

Question 58. Which of the following findings or complications is not typically associated with resection of the ileum?

A. Microcytic hypochromic anemia

B. Nuclear cytological asynchrony

C. Neurological manifestation

D. Reverse dementia

Correct answer: A

The terminal ileum is the primary site for absorption of vitamin B_{12} (cobalamin) and bile salts. When the ileum is resected, absorption of vitamin B_{12} is impaired, which can lead to vitamin B_{12} deficiency.Vitamin B_{12} deficiency results in megaloblastic anemia, characterized by macrocytic red blood cells and impaired DNA synthesis. One important microscopic feature of this condition is nuclear–cytoplasmic asynchrony, where the nucleus matures more slowly than the cytoplasm in developing blood cells. Therefore, nuclear cytological asynchrony is associated with ileal resection.Vitamin B_{12} deficiency can also cause neurological manifestations, such as peripheral neuropathy, paresthesia, ataxia, and degeneration of the spinal cord (subacute combined degeneration). In severe cases, it may lead to cognitive impairment or reversible dementia, which can improve after vitamin B_{12} supplementation.In contrast, microcytic hypochromic anemia is usually caused by iron deficiency. Iron is primarily absorbed in the duodenum and proximal jejunum, not the ileum. Therefore, ileal resection does not typically lead to iron deficiency anemia.Hence, the finding not associated with ileal resection is microcytic hypochromic anemia, making Option (A) correct.

Question 59. A child presents with recurrent infections, and imaging of the mediastinum shows absence of the thymus. Further laboratory evaluation reveals low levels of adenosine deaminase (ADA). What is the most likely diagnosis?

A. Severe Combined Immunodeficiency (SCID)

B. DiGeorge syndrome

C. X-linked agammaglobulinemia

D. Hyper-IgM syndrome

Correct answer: A

The combination of an absent thymus (or thymic shadow on X-ray) and recurrent severe infections points towards a profound T-cell immunodeficiency. While an absent thymus is the hallmark of DiGeorge syndrome (Option B), the laboratory finding of low adenosine deaminase (ADA) levels is specific for a particular autosomal recessive form of Severe Combined Immunodeficiency (SCID). ADA deficiency accounts for about 15% of SCID cases. The ADA enzyme is crucial for purine metabolism. Its absence leads to the accumulation of toxic metabolites (deoxyadenosine and dATP), which are particularly toxic to developing lymphocytes. This results in a severe impairment of both T-cell and B-cell function, leading to the combined immunodeficiency. Although both conditions can have an absent thymus on imaging, the specific enzyme deficiency (low ADA) definitively points to SCID as the diagnosis.

Question 60. Which of the following pathological markers or abnormal protein deposits is characteristically found in Alzheimer’s disease?

A. Tau protein

B. Aβ 40/42 (Amyloid-beta 40/42)

C. Alpha-synuclein

D. TDP-43

Correct answer: B

Alzheimer’s disease (AD) is a neurodegenerative disorder characterized by two key pathological hallmarks :1. Extracellular amyloid-beta (Aβ) plaques → Deposits of Aβ 40/42 peptides, derived from amyloid precursor protein (APP).2. Intracellular neurofibrillary tangles (NFTs) → Composed of hyperphosphorylated tau protein.

Question 61. A 2-year-old woman presents with a gradually progressive, painless swelling on the left side of her neck that has been present for the past two months. She also complains of low-grade fever, night sweats, and unintentional weight loss during this period. On physical examination, there is a firm, non-tender, and immobile mass in the left cervical region, along with multiple smaller lymph nodes palpable in the supraclavicular area. A chest X-ray reveals widening of the mediastinum. Lymph node biopsy demonstrates the presence of Reed–Sternberg cells, confirming the diagnosis.Based on these clinical, radiological, and histopathological findings, what is the most appropriate management for this patient?

A. NHL with a highly aggressive chemotherapy regimen

B. Hodgkin Lymphoma with the ABVD regimen

C. NHL with Rituximab

D. Hodgkin Lymphoma with surgical excision only

Correct answer: B

The patient's presentation with painless lymphadenopathy, constitutional B symptoms (fever, night sweats, weight loss), and the definitive histological finding of Reed-Sternberg cells is diagnostic of Classical Hodgkin Lymphoma. Surgical excision alone (Option D) is not curative as the disease is often systemic. Hodgkin lymphoma is highly sensitive to chemotherapy and radiation. The standard, first-line chemotherapy regimen for most patients with classical Hodgkin lymphoma is ABVD,

Question 62. An adult tall male presents with an increased arm span, pectus excavatum, and associated cardiac abnormalities. Deficiency or defect of which protein is most likely responsible for these features?

A. Fibrillin

B. Elastin

C. Collagen

D. Myosin MEDINK CHAPTER 04_PATHOLOGY

Correct answer: A

This clinical presentation is classic for Marfan syndrome. It is an autosomal dominant connective tissue disorder characterized by skeletal abnormalities (tall stature, long limbs and fingers - arachnodactyly, pectus excavatum or carinatum, scoliosis), ocular problems (ectopia lentis - lens dislocation), and cardiovascular manifestations (aortic root aneurysm and dissection, mitral valve prolapse). Marfan syndrome is caused by a mutation in the FBN1 gene, which codes for the protein fibrillin-1. Fibrillin-1 is a major component of extracellular microfibrils, which provide structural support to connective tissues throughout the body, particularly in the aorta, ligaments, and the ciliary zonules of the eye. Defective fibrillin-1 leads to weakened connective tissue, explaining the multisystemic features of the disease. Elastin (Option B) mutations cause other conditions like cutis laxa.

Question 63. An ultrasound examination reveals two fetuses, with one appearing to be approximately one month more developed than the other. What is the term used to describe this condition?

A. Superfetation

B. Superfecundation

C. Twin-to-twin transfusion syndrome

D. Dichorionic diamniotic twins

Correct answer: A

Superfetation is an extremely rare phenomenon where a second, new conception occurs during an already established pregnancy. It involves the fertilization and implantation of a second oocyte in a uterus that is already gravid. This results in two fetuses of different gestational ages

and developmental stages coexisting in the uterus. The scenario of one baby appearing a month older than the other on ultrasound is the classic description of superfetation. Superfecundation (Option B) is the fertilization of two or more ova from the same ovulatory cycle by sperm from separate acts of intercourse, often leading to twins with different fathers, but the fetuses are of the same gestational age. Twin-to-twin transfusion syndrome (Option C) is a complication of monochorionic twin pregnancies characterized by unequal blood flow, leading to size discrepancy, but not a difference in gestational age.

Question 64. A child is born eight months after the death of the father. The grandparents dispute the child's paternity, but DNA testing confirms that the deceased man is the biological father. What is the legal term used to describe such a child?

A. Suppositious child

B. Fabricated child

C. Posthumous child

D. Illegitimate child

Correct answer: C

The term posthumous literally means after death (from Latin post 'after' and humus

Question 65. During a medicolegal examination, an -year-old male claims that he is only years old. Which joint X-ray should be performed to accurately estimate his age?

A. Head & shoulder

B. Elbow and ankle

C. Knee and wrist

D. Elbow & hip

Correct answer: C

For medicolegal age estimation in adolescents and young adults, radiographic examination of ossification centers is a standard method. The age of 18 is a crucial legal threshold, and the fusion of various epiphyses occurs around this time. The most commonly used and reliable joints for assessing the 16-18 year age range are the wrist and the knee. In the wrist, the fusion of the distal radial and ulnar epiphyses is a key indicator. At the knee, the fusion of the distal femoral and proximal tibial epiphyses is assessed. The fusion of these centers is generally complete or nearing completion around 18 years of age in males, providing strong evidence to differentiate a 16-year-old from an 18-year-old. The elbow joint (Option D) fuses earlier, typically around 14-16 years, making it less useful for distinguishing 16 from 18. The hip also fuses in the mid-to-late teens.

Question 66. A -year-old girl who is a victim of sexual assault presents with a

pregnancy of weeks and is brought for medical termination of pregnancy (MTP). Which of the following statements is correct in this situation?

A. One doctor is involved

B. MTP done in 2nd trimester only when mother's life is in danger

C. MTP can be carried out up to 24 weeks

D. MTP cannot be more than 20 weeks

Correct answer: C

According to the Medical Termination of Pregnancy (Amendment) Act, 2021, of India, the gestational age limit for MTP has been extended. For special categories of women, including minors and survivors of sexual assault, the upper gestational limit for termination is 24 weeks. This case, involving a 14-year-old (minor) victim of sexual assault at 22 weeks gestation, falls squarely within this special category. Therefore, MTP can be legally carried out up to 24 weeks. For a pregnancy between 20 and 24 weeks, the opinion of two registered medical practitioners is required, so Option A is incorrect. The older law had a 20-week limit (making Option D incorrect) and stricter rules for second-trimester terminations (making Option B outdated). The amended act specifically allows for termination up to 24 weeks in such cases to protect the physical and mental health of the survivor.

Question 67. A -week pregnant woman with a fetus diagnosed with congenital anomalies is considering a Medical Termination of Pregnancy (MTP). Whose presence is not required for the authorization of MTP in this case?

A. Obstetrician

B. Lawyer

C. Pediatrician

D. Sonologist

Correct answer: B

Under the Medical Termination of Pregnancy (Amendment) Act, 2021, of India, there is no upper gestational limit for termination in cases of substantial fetal abnormalities diagnosed by a Medical Board. For a pregnancy that has advanced beyond 24 weeks (the patient is at 27 weeks), the decision to permit an MTP must be made by this board. The board is constituted

Question 68. Which chelating agent is specifically indicated for the management of iron overdose?

A. Desferrioxamine

B. BAL

C. Calcium Edetate

D. DTPA

Correct answer: A

The specific chelating agent used for the treatment of acute iron poisoning is desferrioxamine

(also spelled deferoxamine). It is a hexadentate iron chelator, meaning one molecule of desferrioxamine can bind tightly to one atom of ferric iron (), forming a stable, water-soluble complex called ferrioxamine. This complex is non-toxic and is readily excreted by the kidneys, giving the urine a characteristic reddish-brown or vin rosé color. This process effectively removes excess free iron from the plasma and tissues, preventing it from causing severe cellular damage, metabolic acidosis, and shock. British Anti-Lewisite (BAL, dimercaprol) (Option B) is used for arsenic, mercury, and lead poisoning. Calcium disodium edetate (EDTA) (Option C) is used for lead poisoning. Diethylenetriaminepentaacetic acid (DTPA) (Option D) is used for internal contamination with transuranic radioactive elements.

Question 69. Which of the following statements is correct concerning the formation of adipocere?

A. Preservation by saponification

B. High temperature needed

C. Cool and dry climate needed

D. Occurs within minutes to hours

Correct answer: A

No explanation is available for this recall question yet.

Question 70. In cases of death due to a road traffic accident (RTA), who is legally authorized to order the autopsy?

A. Forensic expert

B. Police

C. Lawyer

D. Forensic doctor

Correct answer: B

In deaths that are unnatural, sudden, suspicious, or where the cause is unknown, a medicolegal investigation is required. A death resulting from a Road Traffic Accident (RTA) falls into this category. The legal authority responsible for investigating such deaths and requesting a medicolegal autopsy is the police or a magistrate. Under the Code of Criminal Procedure (CrPC) in India, an Investigating Officer (police) conducts an inquest (panchnama) at the scene. If they suspect foul play or if the cause of death is not apparent, they have the authority to send the body to a government-authorized medical officer for a post-mortem examination (autopsy) to determine the cause and manner of death. The forensic doctor (Option D) performs the autopsy but does not order it. A forensic expert (Option A) or lawyer (Option C) does not have the legal authority to order an autopsy in this context.

Question 71. What is the typical order in which rigor mortis develops and progresses through the muscles of the human body?

A. Centre to periphery

B. Head to foot

C. Foot to head

D. Simultaneously

Correct answer: B

Rigor mortis is the postmortem stiffening of muscles due to the depletion of ATP, which prevents the detachment of myosin heads from actin filaments. The onset and progression of rigor mortis follow a predictable pattern, described by Nysten's Law. It typically begins in the smaller muscle groups and progresses to the larger ones. The sequence starts in the muscles of the face and jaw (eyelids, jaw muscles), then spreads downwards to the muscles of the neck, upper limbs, trunk, and finally to the lower limbs. This classic cephalocaudal or head-to-foot progression is due to the different metabolic rates and glycogen stores in various muscle groups. The process usually begins 2-4 hours after death, is fully established in about 12 hours, persists for another 12 hours, and then resolves in the same head-to-foot sequence as decomposition begins.

Question 72. In cases of sexual assault involving a female victim, in which setting or manner is her evidence usually recorded by the court?

A. Open court proceedings

B. Closed court proceedings

C. Hearing at a different location

D. Hearing on camera

Correct answer: D

To protect the privacy, dignity, and safety of victims of sexual assault, and to encourage reporting without fear of public humiliation, the legal systems in many countries, including India, have specific provisions for recording their testimony. According to Section 327(2) of the Code of Criminal Procedure (CrPC) in India, the inquiry into and trial of rape or related sexual offenses shall be conducted in camera. This means the proceedings are not held in an open court accessible to the public and press. The term on camera is often used synonymously with in camera in this context, referring to a private hearing within the judge's chambers or a courtroom cleared of all persons except those directly involved in the case (judge, lawyers, court staff, accused, and the victim with a support person). This ensures confidentiality and creates a less intimidating environment for the victim to give their evidence.

Question 73. A person is brought by the police from a railway track with symptoms including dry, dilated pupils, dry skin, slurred speech, and altered mental status. What is the most likely cause of poisoning in this case?

A. Morphine

B. Cannabis

C. Datura

D. Alcohol

Correct answer: C

The clinical features described—dilated pupils (mydriasis), dry skin, slurred speech, and altered sensorium (confusion, delirium)—are the hallmark signs of an anticholinergic toxidrome. Datura stramonium (jimsonweed) is a plant that contains potent anticholinergic alkaloids, namely atropine and scopolamine. These substances block muscarinic acetylcholine receptors throughout the body, leading to the classic mnemonic : mad as a hatter (altered mental status), blind as a bat (mydriasis, cycloplegia), red as a beet (flushed skin), hot as a hare (hyperthermia), and dry as a bone (dry skin, dry mucous membranes). The features in the patient strongly match this profile. Morphine (Option A) would cause constricted pupils. Cannabis (Option B) causes conjunctival

Question 74. Which cardioselective beta-blocker has been demonstrated to reduce mortality in patients with congestive heart failure?

A. Propranolol

B. Bisoprolol

C. Labetalol

D. Pindolol

Correct answer: B

While historically beta-blockers were contraindicated in heart failure, several specific agents have been proven in large clinical trials to improve survival and reduce hospitalizations in patients with chronic heart failure with reduced ejection fraction (HFrEF). These are known as evidence-based beta-blockers. The three main

Question 75. In a patient with mild to moderate renal impairment who has received vecuronium-induced muscle relaxation, which drug is most appropriate for reversing the neuromuscular blockade?

A. Physostigmine

B. Rivastigmine

C. Sugammadex

D. Succinylcholine

Correct answer: C

Vecuronium is an aminosteroid non-depolarizing neuromuscular blocking agent. Traditional reversal is achieved with acetylcholinesterase inhibitors like neostigmine, but their efficacy can be limited, and they have side effects. Sugammadex is a novel reversal agent specifically designed for steroidal neuromuscular blockers like rocuronium and vecuronium. It is a modified gamma-cyclodextrin that directly encapsulates the vecuronium molecule in the plasma, forming a tight, water-soluble complex. This rapidly reduces the amount of free drug available at the

neuromuscular junction, leading to a quick and reliable reversal of blockade. Importantly, the sugammadex-vecuronium complex is excreted unchanged by the kidneys. While caution is advised in severe renal failure, it is considered safe and effective in patients with mild to moderate renal impairment, making it a superior choice to older agents in this context. Physostigmine and rivastigmine (Options A, B) are cholinesterase inhibitors not typically used for this purpose in anesthesia. Succinylcholine (Option D) is a depolarizing muscle relaxant.

Question 76. Aprepitant is used in the management of chemotherapy-induced nausea and vomiting. What is its mechanism of action?

A. NK1 antagonist

B. NK3 antagonist

C. NK1 agonist

D. NK2 agonist

Correct answer: A

Aprepitant belongs to a class of antiemetic drugs that work by blocking the effects of substance P, a key neuropeptide involved in the vomiting reflex. Substance P exerts its effects by binding to the neurokinin-1 (NK1) receptor, which is found in high concentrations in the areas of the brainstem that control nausea and vomiting (the nucleus tractus solitarius and area postrema). Chemotherapy can cause the release of substance P, which then activates these NK1 receptors, leading to both acute and, particularly, delayed nausea and vomiting. Aprepitant is a selective high-affinity NK1 receptor antagonist. By blocking this receptor, it prevents substance P from binding and initiating the emetic signal. It is often used in combination with a 5-HT3 antagonist and a corticosteroid for the prevention of chemotherapy-induced nausea and vomiting, especially with highly emetogenic regimens.

Question 77. Which of the following conditions qualifies as an inclusion criterion for initiating the shorter bedaquiline-containing regimen in the treatment of tuberculosis?

A. Extrapulmonary TB like Tubercular meningitis

B. Rifampicin resistance with both KatG and inhA mutation

C. Rifampicin-sensitive TB

D. Rifampicin-resistant but fluoroquinolone-sensitive TB

Correct answer: D

Bedaquiline is a crucial drug for treating drug-resistant tuberculosis. Shorter, all-oral bedaquiline-containing regimens (typically around 9 months) have been developed to improve treatment outcomes and adherence

Question 78. A patient with HIV infection who is receiving antiretroviral therapy with zidovudine, lamivudine, and nevirapine is newly diagnosed with tuberculosis. In view

of potential drug–drug interactions, which antitubercular drug should be modified or replaced in this patient?

A. Isoniazid

B. Rifampicin

C. Ethambutol

D. Streptomycin

Correct answer: B

This question addresses a critical drug-drug interaction between anti-tuberculosis therapy (ATT) and antiretroviral therapy (ART). The patient is on an ART regimen containing nevirapine, which is a non-nucleoside reverse transcriptase inhibitor (NNRTI). The key issue is with rifampicin, a cornerstone of standard TB treatment. Rifampicin is a potent inducer of the cytochrome P450 (CYP450) enzyme system, particularly CYP3A4. Nevirapine is extensively metabolized by these same enzymes. When rifampicin and nevirapine are co-administered, rifampicin significantly accelerates the metabolism of nevirapine, leading to a drastic reduction in its plasma concentration. This can result in subtherapeutic levels of nevirapine, leading to virological failure and the development of HIV drug resistance. Therefore, in a patient on a nevirapine-based regimen, rifampicin must be avoided. It is typically replaced with a less potent enzyme inducer, such as rifabutin, or the ART regimen is switched to one that is not affected by rifampicin (e.g., an efavirenz or dolutegravir-based regimen).

Question 79. Which medication is most commonly used for maintenance therapy in the management of opioid dependence or abuse?

A. Clonidine

B. Buprenorphine

C. Butorphanol

D. Naloxone

Correct answer: B

Opioid maintenance therapy (OMT) is a long-term treatment strategy for opioid use disorder. It involves replacing the illicit opioid

Question 80. Caffeine is a commonly consumed stimulant that increases alertness and promotes wakefulness. Which underlying mechanism is responsible for this effect?

A. Adenosine antagonism

B. Increased discharge of norepinephrine from the locus ceruleus

C. Release of histamine

D. Inhibition of phosphodiesterase

Correct answer: A

The primary mechanism by which caffeine exerts its stimulant and wakefulness-promoting

effects is through competitive antagonism of adenosine receptors in the brain. Adenosine is an inhibitory neuromodulator that builds up during waking hours, and its action on adenosine receptors (particularly A1 and A2A) promotes sleepiness. Caffeine's molecular structure is similar to adenosine, allowing it to bind to these receptors without activating them. By blocking adenosine from binding, caffeine prevents its sleep-inducing effects, leading to increased neuronal firing and enhanced alertness. While caffeine can also inhibit phosphodiesterase (Option D), leading to increased cAMP, this effect typically requires much higher concentrations than are achieved with normal consumption. The increased release of norepinephrine (Option

Question 81. A patient with hypertension has a history of recurrent renal stones and multiple episodes of renal colic. Which diuretic would be the most appropriate choice for managing this patient?

A. Furosemide

B. Hydrochlorothiazide

C. Ethacrynic acid

D. Spironolactone

Correct answer: B

For a patient with both hypertension and a history of calcium-based renal stones, a thiazide diuretic like hydrochlorothiazide (HCTZ) is the most appropriate choice. Thiazide diuretics work by inhibiting the Na-Cl cotransporter in the distal convoluted tubule. This action has a secondary effect of increasing calcium reabsorption from the tubular fluid back into the blood. By promoting calcium retention, HCTZ reduces the amount of calcium excreted in the urine (hypocalciuric effect). This is beneficial for patients with a history of calcium oxalate

Question 82. In a patient with dementia who has symptoms of an overactive bladder, which treatment option is most appropriate?

A. Mirabegron

B. Tiotropium

C. Telenzepine

D. Tropicamide

Correct answer: A

In patients with dementia, treatment of overactive bladder (OAB) requires careful selection of drugs because many bladder medications have anticholinergic effects, which can worsen cognitive impairment, confusion, and memory problems.Mirabegron is the most appropriate treatment because it is a β_3-adrenergic receptor agonist. It works by relaxing the detrusor muscle of the bladder during the storage phase, thereby increasing bladder capacity and reducing symptoms such as urgency, frequency, and urge incontinence. Importantly, mirabegron does not have anticholinergic activity, so it does not worsen cognitive function, making it safer for patients with dementia.The other options are not suitable. Tiotropium is an

anticholinergic bronchodilator used in chronic obstructive pulmonary disease (COPD). Telenzepine is an antimuscarinic drug used for peptic ulcer disease. Tropicamide is a short-acting anticholinergic used in ophthalmology to dilate the pupil during eye examinations.Because anticholinergic drugs can aggravate cognitive decline in dementia, mirabegron is preferred for treating overactive bladder in such patients.

Question 83. When lidocaine is administered as a loading dose for the management of arrhythmias, on which factor does the required loading dose primarily depend?

A. Clearance

B. Volume of distribution

C. Half-life

D. Bioavailability

Correct answer: B

The purpose of a loading dose is to rapidly achieve a target therapeutic concentration of a drug in the plasma. The calculation for a loading dose is primarily determined by two factors : the desired target concentration () and the Volume of Distribution (). The formula is : Loading Dose = . The Volume of Distribution is a theoretical pharmacokinetic parameter that represents the extent to which a drug distributes throughout the body's tissues compared to the plasma. A drug with a large is extensively distributed in the tissues, so a larger initial dose is needed to fill this volume and achieve the desired plasma concentration. Clearance (Option A) and half-life (Option C) are crucial for determining the maintenance dose, which is the rate at which the drug must be administered to maintain the target concentration over time, but not the initial loading dose. Bioavailability (Option D) is relevant for oral dosing, not typically for IV loading doses.

Question 84. A person was on long-term antihypertensive therapy and continued the medication despite experiencing side effects such as constipation, dry mouth, and dizziness. He took the drug regularly but forgot to carry it while traveling abroad and subsequently developed a hypertensive emergency. Which antihypertensive drug was he most likely using?

A. Amlodipine

B. Clonidine

C. Lisinopril

D. Telmisartan

Correct answer: B

This clinical scenario is classic for clonidine withdrawal. Clonidine is a centrally acting alpha-2 adrenergic agonist. It works by stimulating alpha-2 receptors in the brainstem, which reduces sympathetic outflow from the central nervous system, leading to decreased heart rate, vascular resistance, and blood pressure. The side effects of constipation, dry mouth, and dizziness are

common due to its central and anticholinergic-like effects. The most significant issue with clonidine is the risk of rebound hypertension upon abrupt

Question 85. A patient receiving treatment for hypertriglyceridemia develops side effects including flushing, gout, hyperglycemia, and elevated liver enzymes. Which drug is most likely responsible for these adverse effects?

A. Atorvastatin

B. Fenofibrate

C. Nicotinamide

D. Ezetimibe

Correct answer: C

The patient's symptoms present a classic adverse effect profile for nicotinic acid (Niacin/Vitamin B3), a drug used for hypertriglyceridaemia. This unique combination of side effects strongly points to this agent over the others.The intense flushing is a well-known effect caused by prostaglandin release. Niacin can precipitate gout by competing with uric acid for excretion in the kidneys, leading to hyperuricemia. The hyperglycemia results from increased insulin resistance, which can be particularly problematic for diabetic patients. Finally, raised liver enzymes indicate potential hepatotoxicity, a known dose-dependent risk of niacin therapy.In contrast, statins (Atorvastatin) are primarily associated with myopathy, fibrates (Fenofibrate) with gallstones, and Ezetimibe is generally well-tolerated. Therefore, Nicotinamide is the most likely culprit.

Question 86. Concomitant use of erythromycin with which of the following drugs can lead to QT interval prolongation and precipitate Torsades de Pointes?

A. Astemizole

B. Cetirizine

C. Loratadine

D. Promethazine

Correct answer: A

This question concerns a significant drug-drug interaction. Erythromycin is a potent inhibitor of the cytochrome P450 enzyme CYP3A4. Several drugs are metabolized by this enzyme. If a CYP3A4 substrate is co-administered with an inhibitor like erythromycin, the substrate's metabolism will be blocked, leading to a sharp increase in its plasma concentration and risk of toxicity. Astemizole is a second-generation antihistamine that was withdrawn from the market precisely for this reason. It has an intrinsic ability to block cardiac potassium channels (specifically the IKr channel), which can prolong the QT interval on an ECG. At normal doses, this effect is minimal. However, when its metabolism is inhibited by a drug like erythromycin, its levels rise dramatically, leading to significant QT prolongation and a high risk of the life-threatening ventricular arrhythmia Torsades de Pointes. Newer antihistamines like Cetirizine

(Option B) and Loratadine (Option C) do not have this risk.

Question 87. A 5-year-old man with a long history of chronic alcohol consumption is admitted to the hospital after developing anxiety, tremors, and agitation approximately 4 hours after his last intake of alcohol. Which medication is most appropriate for managing and controlling his alcohol withdrawal symptoms?

A. Lorazepam

B. Fomepizole

C. Disulfiram

D. Buspirone

Correct answer: A

The patient is experiencing acute alcohol withdrawal syndrome. Chronic alcohol use enhances the effect of the inhibitory neurotransmitter GABA and inhibits the excitatory neurotransmitter glutamate. Sudden cessation leads to a state of CNS hyperexcitability, causing symptoms like anxiety, tremors, agitation, and potentially seizures or delirium tremens. The mainstay of treatment is to substitute a long-acting GABA-agonist to manage

Question 88. A woman who is 0 weeks pregnant is diagnosed with deep vein thrombosis. Which treatment option is most appropriate for prophylaxis in this patient?

A. Warfarin

B. Low Molecular Weight Heparin (LMWH)

C. Apixaban

D. Fondaparinux

Correct answer: B

The treatment of DVT during pregnancy requires an anticoagulant that is both effective for the mother and safe for the fetus. Low Molecular Weight Heparin (LMWH), such as enoxaparin, is the anticoagulant of choice throughout pregnancy. LMWH is a large molecule that does not cross the placenta, and therefore, it does not pose a risk of fetal bleeding or teratogenicity. It has a predictable dose-response and a lower risk of heparin-induced thrombocytopenia compared to unfractionated heparin. Warfarin (Option A) is a teratogen, especially in the first trimester, and can cause fetal bleeding, so it is contraindicated. The direct oral anticoagulants (DOACs) like Apixaban (Option C) and the indirect factor Xa inhibitor Fondaparinux (Option D) have limited safety data in pregnancy and are generally not recommended as first-line therapy.

Question 89. A woman who is weeks pregnant is diagnosed with hyperthyroidism. Which of the following treatment options is the most appropriate in this stage of pregnancy?

A. Methimazole

B. Carbimazole

C. Propylthiouracil

D. Radioactive iodine

Correct answer: C

The management of hyperthyroidism during pregnancy requires careful selection of antithyroid medication to minimize risks to the fetus. Propylthiouracil (PTU) is the preferred drug during the first trimester of pregnancy. This is because methimazole (Option A) and its prodrug carbimazole (Option B) have been associated with a small but significant risk of congenital malformations (embryopathy), including aplasia cutis and esophageal atresia, when used during the period of organogenesis. PTU is considered safer in this early stage. After the first trimester, it is common practice to switch the patient from PTU back to methimazole, as PTU carries a higher risk of maternal hepatotoxicity with long-term use. Radioactive iodine (Option D) is absolutely contraindicated during pregnancy as it can cross the placenta and ablate the fetal thyroid gland.

Question 90. A patient develops tachycardia, tachypnea, hypertension, and hypocalcemia after ingesting an unknown substance. Laboratory evaluation reveals a high–anion gap metabolic acidosis. Which substance is most likely responsible for this presentation?

A. Iron

B. Methanol

C. Ethylene glycol

D. Digoxin

Correct answer: C

This constellation of findings is highly characteristic of ethylene glycol poisoning. Ethylene glycol, found in antifreeze, is metabolized by alcohol dehydrogenase to several toxic metabolites, including glycolic acid, glyoxylic acid, and finally, oxalic acid. Glycolic acid is the primary contributor to the profound high anion gap metabolic acidosis (HAGMA). The oxalic acid metabolite chelates with serum calcium to form insoluble calcium oxalate crystals. This process leads to hypocalcemia (Option C is the only choice

Question 91. During which phase of clinical trials is the appropriate dosage of a drug usually established?

A. Phase 1

B. Phase 2

C. Phase 3

D. Phase 4

Correct answer: B

Clinical trials are conducted in four phases to evaluate the safety, efficacy, dosage, and

long-term effects of a new drug before and after it is approved for public use.1. Phase 1 trials are the first studies performed in healthy volunteers (usually 20–100 people). The main goal is to evaluate safety, tolerability, pharmacokinetics, and pharmacodynamics. Researchers determine how the drug is absorbed, distributed, metabolized, and excreted.2. Phse 2 trials are carried out in a small group of patients who have the disease (about 100–300 participants). The primary objective of this phase is to assess the drug's therapeutic effectiveness and determine the optimal dosage and dosing regimen. It also continues to monitor safety and short-term side effects.3. Phase 3 trials involve large patient populations (hundreds to thousands) to confirm effectiveness, compare the drug with existing treatments, and detect less common adverse effects.4. Phase 4 trials occur after the drug is approved and marketed, focusing on long-term safety and post-marketing surveillance.Therefore, the appropriate dosage of a drug is usually established during Phase 2 clinical trials.

Question 92. Which of the following statements regarding ciclesonide is not correct?

A. Oral candidiasis is common with its use.

B. It has fewer side effects than other inhalational corticosteroids.

C. It is a prodrug activated by bronchial esterase.

D. It has comparable efficacy to other inhalational corticosteroids.

Correct answer: A

Ciclesonide is a unique inhaled corticosteroid (ICS) used for asthma management. It is administered as a prodrug that is largely inactive until it reaches the lower airways. There, it is converted by intracellular bronchial esterases into its active metabolite, des-ciclesonide (Statement C is correct). This site-specific activation is a key feature that leads to a very favorable safety profile, with fewer local and systemic side effects compared to conventional ICS (Statement B is correct). Because very little active drug is deposited in the oropharynx, the risk of local side effects like oral candidiasis (thrush) and dysphonia (hoarseness) is significantly lower, making Statement A incorrect. Clinical trials have shown that, when used at appropriate doses, ciclesonide has comparable efficacy to other ICS like fluticasone or budesonide in controlling asthma (Statement D is correct).

Question 93. For what purpose is atropine added to diphenoxylate in fixed-dose combination preparations?

A. Atropine decreases the adverse effects of diphenoxylate

B. To prevent abuse of diphenoxylate

C. To enhance the antidiarrheal effect

D. Atropine produces direct spasmolytic action

Correct answer: B

Diphenoxylate is an opioid agonist that acts on μ-receptors in the gastrointestinal tract to decrease motility, making it an effective antidiarrheal agent. However, because it is an opioid,

at high doses, it can cross the blood-brain barrier and produce central effects, including euphoria, creating a potential for abuse and dependence. To mitigate this risk, diphenoxylate is formulated in combination with a subtherapeutic dose of atropine (e.g., in the product Lomotil). The small amount of atropine has negligible effects at the recommended therapeutic dose for diarrhea. However, if a person takes large quantities of the tablets in an attempt to achieve an opioid high, they will also ingest a significant dose of atropine, which will produce unpleasant anticholinergic side effects (dry mouth, blurred vision, tachycardia, urinary retention). This serves as a deterrent to prevent the abuse of diphenoxylate.

Question 94. A 5-year-old man presents with a -day history of burning sensation during urination along with purulent penile discharge. He gives a history of unprotected sexual intercourse with a new partner about two weeks prior to the onset of symptoms. On physical examination, the urethral meatus appears erythematous, and a thick purulent discharge is noted. Gram staining of the urethral discharge demonstrates intracellular Gram-negative diplococci. The patient is otherwise healthy and has no known drug allergies.What is the most appropriate treatment for this patient?

A. Benzathine penicillin G 2.4 million units intramuscularly

B. Cefixime 400 mg orally

C. Metronidazole 500 mg thrice a day

D. Doxycycline 100 mg twice a day

Correct answer: B

The most appropriate treatment is (B) Cefixime 400 mg orally.

Question 95. A -year-old child is brought to the emergency department with a sudden onset of palpitations, shortness of breath, and dizziness. There is no significant past medical history. On examination, the child has a heart rate of 20 beats per minute, a blood pressure of 0/0 mmHg, and appears anxious but remains hemodynamically stable. An electrocardiogram confirms the diagnosis of paroxysmal supraventricular tachycardia (PSVT).What is the recommended initial dose of adenosine for treating this child?

A. 0.1 mg/kg

B. 0.2 mg/kg

C. 0.5 mg/kg

D. 1.0 mg/kg

Correct answer: A

For a hemodynamically stable child with paroxysmal supraventricular tachycardia (PSVT), the first-line pharmacological treatment is adenosine, following the failure of vagal maneuvers. According to pediatric advanced life support (PALS) guidelines, the recommended initial dose of

adenosine is 0.1 mg/kg, administered as a rapid intravenous (IV) push, with a maximum initial dose of 6 mg. Adenosine works by slowing conduction through the AV node, which can interrupt the re-entrant circuit that is responsible for most cases of PSVT. Due to its extremely short half-life (less than 10 seconds), it must be given very rapidly, followed immediately by a saline flush. If the initial dose is ineffective, a second, larger dose of 0.2 mg/kg (with a maximum of 12 mg) may be administered. Therefore, the correct initial dose is 0.1 mg/kg.

Question 96. A 5-year-old patient presents with bone pain, anemia, hypercalcemia, and renal dysfunction. Bone marrow biopsy confirms a diagnosis of multiple myeloma, and appropriate treatment is initiated. Among the treatment options used for multiple myeloma, which one is most commonly associated with reactivation of herpes zoster infection?

A. Bortezomib.

B. Lenalidomide

C. Daratumumab

D. Melphalan

Correct answer: A

BortezomibThe treatment of multiple myeloma has evolved significantly with the introduction of novel agents. Bortezomib is a proteasome inhibitor and is a cornerstone of therapy for newly diagnosed and relapsed multiple myeloma. A well-documented and significant side effect associated with bortezomib treatment is an increased risk of herpes zoster (shingles) reactivation. This is believed to be due to the drug's impact on T-cell function and overall cell-mediated immunity, which is crucial for controlling the latent varicella-zoster virus. The incidence of zoster reactivation can be as high as 10-20% in patients treated with bortezomib without prophylaxis. For this reason, it is standard practice to administer antiviral prophylaxis, typically with acyclovir or valacyclovir, for the duration of bortezomib-based therapy to prevent this complication. While other agents can be immunosuppressive, the link is strongest and most established with proteasome inhibitors like bortezomib.

Question 97. Which medication acts as a selective norepinephrine reuptake inhibitor (SNRI) and is used in the treatment of attention-deficit/hyperactivity disorder (ADHD)?

A. Reboxetine

B. Methylphenidate

C. Guanfacine

D. Modafinil

Correct answer: A

Reboxetine is a Selective Norepinephrine Reuptake Inhibitor (NRI). Its mechanism involves blocking the norepinephrine transporter, which increases the levels of norepinephrine in the

brain's synapses. This action helps to improve focus, attention, and impulse control, making it a viable, though often off-label, treatment for ADHD. A more widely recognized NRI specifically approved for ADHD is Atomoxetine, which belongs to the same pharmacological class.

Question 98. An 8-year-old boy from Rajasthan, weighing 0 kg, is diagnosed with mixed malaria due to Plasmodium vivax and Plasmodium falciparum. What is the appropriate treatment regimen to be given on day ?

A. Artesunate 50 mg (4 tablets) + Primaquine 2.5 mg (6 tablets)

B. Artesunate 50 mg (4 tablets) + Primaquine 7.5 mg (6 tablets)

C. Artesunate 50 mg (4 tablets) + Sulfadoxine/pyrimethamine (750/37.5 mg) (2 tablets) + Primaquine 2.5 mg (6 tablets)

D. Artesunate 50 mg (4 tablets) + Sulfadoxine/pyrimethamine (750/37.5 mg) (2 tablets) + Primaquine 7.5 mg (6 tablets)

Correct answer: C

1. In mixed malaria infection with Plasmodium vivax and Plasmodium falciparum, treatment should cover both species. According to malaria treatment guidelines used in many parts of India, including Rajasthan, the recommended therapy is Artemisinin-based Combination Therapy (ACT) along with primaquine.2. Artesunate is an artemisinin derivative that rapidly reduces parasitemia by killing the blood stages of the parasite. For a patient weighing 50 kg, the recommended dose is 200 mg, which corresponds to four tablets of 50 mg. Artesunate is given for three days.3. Sulfadoxine–pyrimethamine (SP) is administered as a single dose on day 1 or day 2 along with artesunate as part of ACT. It works by inhibiting folate synthesis in

Question 99. Which of the following growth hormone analogues is not used for the treatment of GH deficiency but is used in the treatment of HIV-associated lipodystrophy?

A. Tesamorelin

B. Sermorelin

C. Somatropin

D. Pegvisomant

Correct answer: A

Tesamorelin is a synthetic analogue of growth hormone-releasing hormone (GHRH). It works by stimulating the pituitary gland to produce and release endogenous growth hormone. Its specific indication is for the reduction of excess visceral abdominal fat in patients with HIV-associated lipodystrophy, a condition characterized by abnormal fat redistribution. It is not used for treating growth hormone (GH) deficiency itself. In contrast, Somatropin (Option C) is a recombinant form of human growth hormone and is the standard treatment for GH deficiency. Sermorelin (Option B) is another GHRH analogue that has been used to diagnose and sometimes treat GH deficiency, but it is less common now. Pegvisomant (Option D) is a GH

receptor antagonist and is used to treat acromegaly (GH excess), not deficiency. Therefore, Tesamorelin is the correct answer as its primary use is for HIV lipodystrophy.

Question 100. A 5-year-old man with a known history of depression was initially treated with sertraline, but his symptoms did not improve adequately. His treatment was subsequently modified to include a monoamine oxidase (MAO) inhibitor along with amitriptyline. Soon after this change in therapy, the patient developed symptoms MEDINK CHAPTER 06_PHARMACOLOGY such as agitation, seizures, hyperreflexia, and tremors.Which of the following is the most appropriate treatment for managing this patient's condition?

A. Cyproheptadine

B. Lorazepam

C. L-carnitine

D. Leucovorin

Correct answer: A

This patient's presentation is a classic example of serotonin syndrome, a potentially life-threatening condition caused by excessive serotonergic activity in the central nervous system. The combination of a monoamine oxidase inhibitor (MAOI) with a tricyclic antidepressant (amitriptyline) or an SSRI (sertraline) is a high-risk combination for precipitating this syndrome, as all these agents increase serotonin levels through different mechanisms. The symptoms include a triad of altered mental status (agitation), autonomic hyperactivity, and neuromuscular abnormalities (hyperreflexia, tremors, myoclonus). The specific antidote for serotonin syndrome is cyproheptadine, which is a potent antagonist of serotonin receptors (specifically 5-HT2A). Supportive care is also critical, including the use of benzodiazepines like lorazepam (Option B) for agitation and seizures, but cyproheptadine is the targeted pharmacological treatment for the underlying pathophysiology.

Question 101. In a patient with eclampsia receiving magnesium sulfate therapy, which clinical finding or parameter indicates that the drug should be discontinued?

A. Respiratory rate more than 18 per minute

B. Exaggerated deep tendon reflexes

C. Urine output less than 60 ml in 4 hours

D. Presence of visual disturbances

Correct answer: C

Magnesium sulfate is the drug of choice for seizure prophylaxis and treatment in pre-eclampsia and eclampsia. However, it has a narrow therapeutic index, and toxicity can occur. Magnesium is cleared exclusively by the kidneys, so adequate renal function is essential. A urine

Question 102. A 2-year-old woman in late pregnancy presents with seizures and

severe hypertension and is diagnosed with eclampsia. She is started on magnesium sulfate therapy. During treatment, several clinical and laboratory parameters must be carefully monitored to avoid magnesium toxicity.Which of the following parameters does not require routine monitoring during magnesium sulfate therapy in this patient?

A. Urine output

B. Deep tendon reflexes

C. Serum magnesium levels

D. Respiratory rate

Correct answer: C

When administering magnesium sulfate for eclampsia, close clinical monitoring is essential to prevent toxicity. The standard parameters to check regularly (often hourly) are : urine output (to ensure adequate renal clearance, must be >30 ml/hr), deep tendon reflexes (specifically the patellar reflex, as its disappearance is the first clinical sign of toxicity), and respiratory rate (as respiratory depression is a life-threatening sign of severe toxicity, rate should be >12 breaths/ min). These clinical assessments are reliable, readily available, and sufficient for safe management in most cases. While serum magnesium levels can be measured, they are not routinely checked as part of standard monitoring protocols. This is because the test results are often not available quickly enough to guide immediate clinical decisions, and clinical signs are highly reliable indicators of

Question 103. A 0-year-old individual with a history of drug abuse presents to the emergency department with features suggestive of acute poisoning from an unknown substance. The patient has dilated pupils, excessive sweating, tachycardia, and tremors. On examination, blood pressure is 60/00 mmHg and heart rate is 20 beats per minute.Based on this clinical presentation, what is the most likely diagnosis?

A. Cocaine intoxication

B. Dhatura poisoning

C. Cannabis poisoning

D. Alcohol intoxication

Correct answer: A

The patient's clinical presentation is a classic sympathomimetic toxidrome. This is characterized by widespread stimulation of the sympathetic nervous system, leading to tachycardia, hypertension, mydriasis (dilated pupils), diaphoresis (sweating), tremors, and agitation. Cocaine is a potent sympathomimetic agent that works by blocking the reuptake of norepinephrine, dopamine, and serotonin, leading to this state of hyperexcitability. Dhatura poisoning (Option B) would cause an anticholinergic toxidrome, characterized by mydriasis, tachycardia, and

hypertension, but with dry skin and mucous membranes (mad as a hatter, blind as a bat, red as a beet, hot as a hare, dry as a bone). Cannabis (Option C) typically causes tachycardia and conjunctival injection but not usually severe hypertension or tremors. Alcohol intoxication (Option D) is a CNS depressant. The presence of diaphoresis is a key feature that points towards a sympathomimetic rather than an anticholinergic syndrome.

Question 104. A pregnant woman at 7 weeks of gestation has a history of prosthetic heart valve replacement and is currently on warfarin therapy. She presents for a routine antenatal check-up. What is the most appropriate management or advice in this situation?

A. Immediate induction of labor

B. Perform LSCS (Lower Segment Cesarean Section)

C. Continue the same medication

D. Switch to low molecular weight heparin

Correct answer: D

Warfarin is an oral anticoagulant that crosses the placenta and can cause fetal bleeding, especially during labor and delivery. Its anticoagulant effect is also long-lasting and difficult to reverse quickly. For these reasons, it is standard practice to discontinue warfarin in pregnant women with prosthetic heart valves as they approach term. The patient should be admitted to the hospital and switched from warfarin to an anticoagulant that does not cross the placenta and has a shorter half-life, such as unfractionated heparin (UFH) or low molecular weight heparin (LMWH). This is typically done around 36 weeks of gestation. The heparin can then be stopped shortly before a planned induction of labor or cesarean section to minimize the risk of maternal hemorrhage. Continuing warfarin (Option C) up to delivery is dangerous for both mother and fetus. The decision to induce labor (Option A) or perform an LSCS (Option B) will be made after the anticoagulation has been safely managed.

Question 105. A 5-year-old man is brought to the emergency department with head injury following a road traffic accident. During hospitalization, he develops seizures, and an urgent CT scan shows diffuse cerebral edema.Which diuretic is the drug of choice for the management of cerebral edema in this patient?

A. Mannitol

B. Spironolactone

C. Furosemide

D. Hydrochlorothiazide

Correct answer: A

In the setting of acute traumatic brain injury with cerebral edema and signs of increased intracranial pressure (ICP), the diuretic of choice is an osmotic diuretic, with mannitol being the gold standard. Mannitol is a large sugar molecule that is administered intravenously. It remains

in the intravascular space, increasing the osmotic pressure of the blood. This creates

Question 106. A patient develops bloody diarrhea after eating oysters, and the isolated organism shows a positive Kanagawa phenomenon. Which organism is most likely responsible?

A. Staphylococcus aureus

B. Vibrio parahaemolyticus

C. Campylobacter jejuni

D. Salmonella typhi

Correct answer: B

This clinical scenario provides several key clues. The patient's illness began after consuming oysters, a type of raw seafood, which is a common vehicle for Vibrio species. The presentation of bloody diarrhea indicates an invasive pathogen. The most specific clue is the Kanagawa phenomenon. This refers to the ability of pathogenic strains of Vibrio parahaemolyticus to produce a thermostable direct hemolysin (TDH), which causes beta-hemolysis on a special high-salt agar medium (Wagatsuma agar). This phenomenon is strongly associated with the virulence of V. parahaemolyticus strains that cause gastroenteritis in humans. Staphylococcus aureus (Option A) causes rapid-onset vomiting and non-bloody diarrhea due to a preformed toxin. Campylobacter jejuni (Option C) can cause bloody diarrhea but is not associated with the Kanagawa phenomenon. Salmonella Typhi (Option D) causes typhoid fever, typically with constipation or pea-soup diarrhea, not usually bloody diarrhea initially.

Question 107. Desert rheumatism is caused by :

A. Paracoccidioides brasiliensis

B. Candida albicans

C. Cryptococcus neoformans

D. Coccidioides immitis

Correct answer: D

Desert rheumatism is a clinical syndrome that is a manifestation of primary infection with Coccidioides immitis (or C. posadasii), the causative agent of coccidioidomycosis, also known as Valley Fever. This dimorphic fungus is endemic to the arid and semi-arid regions of the southwestern United States and parts of Mexico and Central/South America. Infection occurs via inhalation of airborne arthroconidia from the soil. While most infections are asymptomatic or cause mild flu-like illness, some individuals develop a hypersensitivity reaction characterized by a triad of fever, erythema nodosum (painful red nodules on the shins), and arthralgias (joint pain). This specific constellation of symptoms is historically referred to as desert rheumatism. The other fungi listed have different endemic regions and clinical presentations : Paracoccidioides (Option A) in South America, Cryptococcus (Option C) is ubiquitous, and Candida (Option B) is part of the normal flora.

Question 108. Broad-based budding yeasts are seen in :

A. Histoplasmosis

B. Blastomycosis

C. Candidiasis

D. Coccidioidomycosis

Correct answer: B

The microscopic finding of large yeast cells that reproduce by a single bud attached via a wide or broad base is the pathognomonic feature of Blastomyces dermatitidis, the causative agent of blastomycosis. In tissue or at 37°C, this dimorphic fungus converts from its mycelial form to its characteristic yeast form. The yeast cells are typically large (8-15 µm), spherical, and have thick, refractile cell walls. The budding process results in a single daughter cell that remains attached by a very broad base before separating, an appearance often described as a bowling pin on a bowling ball. This is a key feature used to differentiate it from other fungi. Histoplasma capsulatum (Option A) appears as small, oval yeasts, often within macrophages.

Question 109. A frequent traveler presents with a 4-day history of remitting fever, abdominal pain, and relative bradycardia. Which diagnostic test is most appropriate to confirm the causative pathogen?

A. Widal test

B. Blood culture

C. Urine culture

D. Stool culture

Correct answer: B

The patient's symptoms of fever (often described as step-ladder fever), abdominal pain, and relative bradycardia (Faget's sign) in a frequent traveler are highly suspicious of typhoid fever, caused by Salmonella Typhi. The timing of the diagnostic test is crucial. In the first week of illness (patient is on day 4), the bacteria are circulating in the bloodstream (bacteremia). Therefore, a blood culture is the diagnostic test of choice and has the highest yield during this period, being positive in about 80-90% of cases. Stool cultures (Option D) and urine cultures (Option C) are more likely to become positive in the second and third weeks of the illness as the bacteria colonize the Peyer's patches and are shed. The Widal test (Option A), which detects antibodies, is not reliable for early diagnosis as antibodies take time to develop (typically after 7-10 days), and it has issues with specificity and sensitivity.

Question 110. An adult with a military background presents with fever, rash, altered mental status, and a known deficiency of the membrane attack complex. Which etiological agent is most likely responsible for this presentation?

A. Klebsiella pneumoniae

B. Neisseria meningitidis

C. Haemophilus influenzae

D. CMV

Correct answer: B

The patient's symptoms of fever, rash (petechial or purpuric), and altered sensorium are classic

Question 111. A 40-year-old farmer presents with fever, calf muscle tenderness, conjunctival suffusion, retro-orbital pain, and hypokalemia. What is the most likely diagnosis?

A. Malaria

B. Dengue

C. Leptospira

D. Influenza

Correct answer: C

This combination of clinical features is highly characteristic of Leptospirosis, a zoonotic disease caused by spirochetes of the genus Leptospira. Farmers are at high risk due to occupational exposure to water or soil contaminated with the urine of infected animals (like rodents). The classic presentation includes an abrupt onset of high fever, myalgia (especially severe calf tenderness), headache (often retro-orbital), and conjunctival suffusion (redness of the conjunctiva without exudate), which is a hallmark sign. Renal involvement is common, and can lead to electrolyte disturbances such as hypokalemia due to tubular dysfunction. While Dengue (Option B) can cause fever and retro-orbital pain, the severe calf tenderness and conjunctival suffusion are more specific for Leptospirosis. Malaria (Option A) and Influenza (Option D) do not typically present with this complete constellation of signs.

Question 112. A woman presents with a long-standing history of fever and swelling of the lower limbs, and a blood smear reveals a parasitic organism on microscopy. Which pathogen is responsible for this condition?

A. Brugia

B. Mansonella

C. Wuchereria bancrofti

D. Loa loa

Correct answer: C

The patient's symptoms of chronic fever and lower limb swelling (lymphedema, which can progress to elephantiasis) are characteristic of lymphatic filariasis. The microscopic image would show a microfilaria, the larval stage of the filarial worm. The key to differentiating the species is the morphology of the microfilaria. Wuchereria bancrofti, the most common cause of lymphatic filariasis, has a microfilaria that is sheathed and lacks terminal nuclei (the nuclei do not extend to the tip of the tail). In contrast, the microfilaria of Brugia malayi (Option A) is also sheathed but has two distinct terminal nuclei at the tip of its tail. The microfilariae of Loa loa

(Option D) are sheathed and have nuclei that are continuous to the tip of the tail. Mansonella species (Option B) are typically unsheathed. Given that W. bancrofti is responsible for about 90% of lymphatic filariasis cases worldwide, it is the most likely pathogen.

Question 113. In the designation Escherichia coli O157 :H7, what does the letter H represent?

A. Lipopolysaccharide (LPS)

B. Capsule

C. Flagella

D. Fimbriae

Correct answer: C

The serotyping of bacteria like Escherichia coli is based on surface antigens. The designation O157 :H7 refers to the specific antigens present on this pathogenic strain. The O antigen refers to the somatic O-polysaccharide component of the lipopolysaccharide (LPS) (Option A) in the outer membrane of the bacterial cell wall. There are many different O-types. The H antigen refers to the protein that makes up the bacterial flagella

Question 114. A patient admitted to the ICU with a central venous catheter develops an infection, and microscopy shows a Gram-positive, ovoid, budding organism. Which organism is most likely responsible for this infection?

A. Candida

B. Staphylococcus epidermidis

C. Escherichia coli

D. Staphylococcus aureus

Correct answer: A

The microscopic description of a Gram-positive ovoid budding organism is characteristic of yeast, and in a clinical context, this most often refers to Candida species. Candida albicans and other Candida species are common causes of healthcare-associated bloodstream infections (candidemia), particularly in ICU patients with central venous catheters. The CVC provides a direct portal of entry into the bloodstream, and risk factors like broad-spectrum antibiotic use, parenteral nutrition, and immunosuppression are common in the ICU. The other options are bacteria. Staphylococcus epidermidis (Option B) and Staphylococcus aureus (Option D) are Gram-positive cocci, typically seen in clusters. Escherichia coli (Option C) is a Gram-negative rod. The description of budding is the key feature that distinguishes yeast from bacteria.

Question 115. A farmer presents with a subcutaneous lesion on the foot associated with discharge. Microscopic examination of a white granule obtained from the wound reveals Gram-positive, filamentous rod-shaped organisms. Which organism is the most likely cause of this condition?

A. Staphylococcus aureus

B. Histoplasma

C. Nocardia

D. Sporothrix

Correct answer: C

This clinical presentation describes mycetoma, a chronic, subcutaneous infection characterized by swelling, sinus tract formation, and the

Question 116. A young boy who habitually cleaned his contact lenses using tap water or contaminated lens solution develops keratitis. Microscopic examination reveals an organism with spiked or star-shaped structures. Which organism is most likely responsible for this infection?

A. Balantidium

B. Pseudomonas

C. Acanthamoeba

D. Staphylococcus aureus

Correct answer: C

The history of keratitis in a contact lens wearer with poor hygiene practices, particularly exposure to tap water, is highly suggestive of Acanthamoeba keratitis. Acanthamoeba is a free-living amoeba found ubiquitously in soil, dust, and water sources (including tap water, swimming pools, and oceans). The microscopic description is the definitive clue. Acanthamoeba exists in two forms : a motile trophozoite and a dormant, highly resistant cyst. The cyst form is characteristically double-walled, with the outer wall (ectocyst) often being wrinkled or spiked and the inner wall (endocyst) being polygonal or star-shaped. This appearance is pathognomonic. Pseudomonas (Option B) is a common bacterial cause of contact lens-related keratitis but does not form spiked cysts. Staphylococcus aureus (Option D) is another bacterial cause. Balantidium coli (Option A) is an intestinal protozoan.

Question 117. Which viral infection is most commonly associated with and likely responsible for precipitating an aplastic crisis in this patient?

A. Parvovirus B19

B. Epstein-Barr Virus (EBV)

C. Hepatitis B Virus (HBV)

D. Cytomegalovirus (CMV)

Correct answer: A

An aplastic crisis is a condition characterized by a temporary cessation of red blood cell production in the bone marrow. It presents as a sudden, severe drop in hemoglobin and reticulocyte count. This is particularly dangerous in patients with underlying chronic hemolytic anemias (like sickle cell disease or hereditary spherocytosis), where the red blood cell lifespan

is already shortened. The most common infectious trigger for an aplastic crisis is Parvovirus B19. This virus has a specific

Question 118. A patient with HIV infection presents with foul-smelling stools. Stool microscopy shows no ova or cysts; however, a larval form measuring approximately 200 micrometers is detected. Which pathogen is most likely responsible for this finding?

A. Strongyloides stercoralis

B. Ascaris lumbricoides

C. Ancylostoma duodenale

D. Schistosoma mansoni

Correct answer: A

Strongyloides stercoralis is an intestinal nematode that commonly infects humans through skin penetration by filariform larvae present in contaminated soil. After entering the body, the larvae migrate through the bloodstream to the lungs, ascend the respiratory tract, and are swallowed to reach the small intestine, where adult worms develop.A key diagnostic feature of Strongyloides infection is the presence of larvae in stool, rather than eggs. In stool microscopy, rhabditiform larvae measuring approximately 180–380 µm are typically observed, which fits the description of a larval form around 200 µm in the question.In immuno compromised patients, particularly those with HIV infection, Strongyloides can cause hyperinfection syndrome due to its ability to undergo autoinfection within the host. This can lead to increased numbers of larvae in stool and symptoms such as chronic diarrhea, foul-smelling stools, abdominal pain, and malabsorption.The other options usually show eggs rather than larvae in stool. Ascaris lumbricoides and Ancylostoma duodenale (hookworm) are typically diagnosed by their eggs in stool,

Question 119. What is the primary function of IL-8?

A. Chemotaxis

B. Lymphocyte proliferation

C. TH1 activation

D. Fever

Correct answer: A

Interleukin-8 (IL-8), now also known as CXCL8, is a proinflammatory chemokine. Its primary and most potent biological function is to act as a chemoattractant, primarily for neutrophils. This process is known as chemotaxis. IL-8 is produced by various cells, including macrophages and endothelial cells, in response to inflammatory stimuli. It creates a chemical gradient that directs the migration of neutrophils from the bloodstream to the site of inflammation or infection, where they can perform their phagocytic functions. While the inflammatory cascade is complex, the specific and defining role of IL-8 is this recruitment of neutrophils. Lymphocyte proliferation

(Option B) is stimulated by other interleukins like IL-2. TH1 activation (Option C) is driven by IL-12. Fever (Option D) is a systemic effect mediated primarily by IL-1, IL-6, and TNF-α.

Question 120. A patient from Bihar presents with splenomegaly and clinical features suggestive of leishmaniasis. Which vector is responsible for transmitting this disease?

A. Phlebotomus

B. Rat flea

C. Black fly

D. Chrysops fly

Correct answer: A

Leishmaniasis is a protozoan disease transmitted by the bite of an infected female sandfly. The clinical presentation of splenomegaly, fever, weight loss, and pancytopenia, particularly in a patient from an endemic region like Bihar in India, is highly suggestive of visceral leishmaniasis (Kala-azar), caused by Leishmania donovani. The vector responsible for transmitting Leishmania parasites is the Phlebotomine sandfly. In the Old World (including India), the vector belongs to the genus Phlebotomus, specifically Phlebotomus argentipes in the

Question 121. Which type of PCR technique is most appropriate for identifying a clinical syndrome that may be caused by multiple different pathogens?

A. RT-PCR

B. Multiplex PCR

C. Nested PCR

D. Conventional PCR

Correct answer: B

When a clinical syndrome can be caused by several different pathogens (e.g., a respiratory infection panel or a meningitis panel), it is most efficient to test for all potential agents simultaneously. Multiplex PCR is a technique specifically designed for this purpose. It uses multiple sets of primers within a single PCR mixture to amplify DNA or RNA sequences from several different organisms in one reaction. This allows for the simultaneous detection and identification of multiple pathogens, saving time, resources, and patient sample compared to running individual conventional PCRs for each suspected agent. RT-PCR (Option A) is used to amplify RNA targets (by first converting them to cDNA). Nested PCR (Option C) is used to increase the sensitivity and specificity of a reaction but typically targets a single pathogen. Conventional PCR (Option D) also targets a single sequence per reaction.

Question 122. Ptosis seen in Horner syndrome results from involvement or paralysis of which muscle?

A. Müller muscle

B. Levator aponeurosis

C. Horner's muscle

D. Orbicularis oculi

Correct answer: A

Horner syndrome is caused by a disruption of the sympathetic nerve supply to the eye and face. One of the classic signs is a mild ptosis (drooping of the upper eyelid), typically 1-2 mm. This ptosis is not caused by paralysis of the main eyelid elevator, the levator palpebrae superioris (which is innervated by the oculomotor nerve, CN III). Instead, it is due to paralysis of the Müller's muscle, also known as the superior tarsal muscle. This is a small smooth muscle located in the upper eyelid that is innervated by sympathetic fibers. It provides a small amount of tonic elevation to the eyelid. Loss of this sympathetic innervation results in the characteristic mild ptosis. Horner's muscle (Option C) is part of the lacrimal drainage system. The orbicularis oculi (Option D) closes the eye and is innervated by the facial nerve.

Question 123. A patient develops eye pain and difficulty in vision after watching a movie. What should be the first-line management for this condition?

A. Mannitol with Moxifloxacin

B. Mannitol with Pilocarpine

C. Mannitol with Atropine

D. Mannitol with lubricating eye drops

Correct answer: B

The patient's symptoms of acute eye pain and blurred vision, precipitated by being in a dark environment (a movie theater, which causes pupillary dilation), are classic for an attack of acute angle-closure glaucoma (AACG). This is an ophthalmic emergency caused by a sudden increase in intraocular pressure (IOP). The immediate goal of management is to lower the IOP rapidly and to break the pupillary block. This is achieved with a combination of medications. An intravenous osmotic agent like Mannitol is given to quickly dehydrate the vitreous and lower IOP systemically. Concurrently, a topical miotic agent like Pilocarpine is administered. Pilocarpine constricts the pupil, which helps to pull the peripheral iris away from the trabecular meshwork, thereby opening the drainage angle and relieving the pupillary block. Atropine (Option C) is a mydriatic and would worsen the condition. Moxifloxacin (Option A) is an antibiotic.

Question 124. A newborn presents with hydrocephalus, intracranial calcifications, and chorioretinitis. What is the most likely diagnosis based on these findings?

A. Toxoplasmosis

B. Syphilis

C. Cytomegalovirus (CMV) infection

D. Rubella

Correct answer: A

The triad of hydrocephalus, diffuse intracranial calcifications, and chorioretinitis in a neonate is the classic presentation of congenital toxoplasmosis. This is the Sabin triad, and while not all infected infants show all three signs, their combination is highly suggestive. The infection is caused by the protozoan Toxoplasma gondii, which is transmitted transplacentally from a mother who acquires a primary infection during pregnancy. In contrast, congenital Cytomegalovirus (CMV) infection (Option C) is the most common congenital infection and can also cause chorioretinitis and hydrocephalus, but the intracranial calcifications are typically periventricular rather than diffuse. Congenital rubella (Option D) is associated with cataracts,

Question 125. A patient diagnosed with homocystinuria presents with ectopia lentis (lens dislocation). Supplementation of which vitamin is indicated in this condition?

A. Vitamin B12

B. Vitamin B6 MEDINK CHAPTER 08_OPHTHALMOLOGY

C. Thiamine

D. Vitamin B9 (Folate)

Correct answer: B

Vitamin B6Homocystinuria is an inherited disorder of metabolism that leads to high levels of homocysteine. The most common form is caused by a deficiency of the enzyme cystathionine β-synthase (CBS). One of the classic clinical features is ectopia lentis, or dislocation of the ocular lens, which typically displaces inferiorly and nasally. The CBS enzyme requires pyridoxal phosphate (PLP), the active form of Vitamin B6, as a cofactor. In a significant number of patients with this form of homocystinuria, the genetic defect results in an enzyme that has reduced affinity for its cofactor but is still partially functional. In these B6-responsive patients, treatment with high pharmacological doses of Vitamin B6 (pyridoxine) can enhance the residual enzyme activity, lower homocysteine levels, and potentially slow the progression of complications like ectopia lentis and thromboembolism.

Question 126. A child presents with leukocoria and is found to have an intraocular mass. Microscopic examination reveals rosette formations with scanty cytoplasm, and immunohistochemistry shows positivity for synaptophysin. What is the most likely diagnosis?

A. Retinoblastoma

B. Medulloblastoma

C. Neuroblastoma

D. Ependymoma

Correct answer: A

Leukocoria (a white pupillary reflex) in a child is a red flag sign for retinoblastoma, the most common intraocular malignancy of childhood. The diagnosis is confirmed by histological

examination of the enucleated eye. The classic microscopic features of retinoblastoma include sheets of small, round, blue cells with hyperchromatic nuclei and scant cytoplasm. A characteristic feature is the formation of rosettes, particularly Flexner-Wintersteiner rosettes (cells arranged around a central empty lumen) and Homer Wright rosettes (cells arranged around a fibrillary center). The tumor cells are of neuronal origin, so they typically stain positive for neuronal markers like neuron-specific enolase (NSE) and synaptophysin.

Question 127. A young athlete is diagnosed with hypertrophic cardiomyopathy during pre-competition evaluation. Which maneuver would increase the intensity of the murmur associated with this condition?

A. Handgrip

B. Valsalva maneuver

C. Squatting

D. Increase on leaning forwards

Correct answer: B

The murmur of Hypertrophic Obstructive Cardiomyopathy (HOCM) is caused by dynamic left ventricular outflow tract (LVOT) obstruction. The intensity of the murmur is inversely related to the volume of the left ventricle; maneuvers that decrease preload or decrease afterload will make the LV cavity smaller, worsen the obstruction, and thus increase the murmur's intensity. The Valsalva maneuver (straining phase) significantly decreases venous return (preload), making it a classic way to accentuate the HOCM murmur. In contrast, maneuvers that increase preload or afterload will increase the LV volume, lessen the obstruction, and decrease the murmur. Squatting (Option C) and handgrip (Option A) both increase systemic vascular resistance (afterload) and venous return, thereby decreasing the murmur.

Question 128. A patient with hypertension presents with severe chest pain and unequal radial pulses. What is the appropriate management for this condition?

A. Emergency surgical repair

B. BP control and monitoring

C. Stenting

D. Balloon dilatation

Correct answer: B

The patient's presentation is a textbook case of acute aortic dissection. The combination of a history of hypertension, excruciating chest pain—often described as a sudden tearing sensation radiating to the back—and unequal

Question 129. A patient presents with signs of right-sided heart failure. Examination reveals an irregularly irregular pulse, a loud diastolic heart sound on auscultation, and a jugular venous pulse with a rapid Y descent. What is the most likely diagnosis?

A. Constrictive pericarditis

B. Cardiac tamponade

C. Mitral stenosis

D. Aortic regurgitation

Correct answer: A

The combination of findings is classic for constrictive pericarditis. In this condition, a thickened, fibrotic, and often calcified pericardium encases the heart, restricting its diastolic filling. This leads to signs of right heart failure (elevated JVP, edema, ascites). The JVP waveform is characteristic : it shows a prominent and rapid 'y' descent (Friedreich's sign), which reflects the rapid early diastolic filling of the ventricle before it is abruptly halted by the constricting pericardium. This abrupt halt in filling also produces a high-pitched diastolic sound called a pericardial knock. Atrial fibrillation (causing the irregularly irregular pulse) is also common due to chronically elevated atrial pressures. In cardiac tamponade (Option B), the 'y' descent is blunted or absent.

Question 130. A patient presents with acute shortness of breath, tachycardia (HR 120/min), and hypotension (BP 90/60 mm Hg). Echocardiography reveals diastolic collapse of the ventricles. What is the most appropriate management for this patient?

A. Start diuretic with BP monitoring

B. Intra-aortic balloon pump

C. Pericardiocentesis

D. Ventricular assist device

Correct answer: C

The patient's presentation with hypotension, tachycardia, and shortness of breath constitutes Beck's triad (though muffled heart sounds aren't mentioned, they are implied), suggesting obstructive shock. The key diagnostic finding is the diastolic collapse of the right ventricle and right atrium on echocardiography. This is a highly specific sign of cardiac tamponade, a condition where fluid accumulates rapidly in the pericardial space, compressing the heart and severely impairing diastolic filling. This is a life-threatening medical emergency. The definitive, life-saving management is to immediately remove the pericardial fluid to

Question 131. A patient with hypertension presents with an irregularly irregular pulse and a loud P2 on cardiac auscultation. Which jugular venous pulse finding is most likely to be present in this patient?

A. Absent a wave

B. Cannon a wave

C. Rapid x descent

D. Rapid y descent

Correct answer: A

An irregularly irregular pulse is the clinical hallmark of atrial fibrillation (AF). The loud P2 component of the second heart sound suggests the presence of pulmonary hypertension, which is a common cause or consequence of conditions leading to AF. The jugular venous pressure (JVP) waveform reflects the pressure changes in the right atrium. The 'a' wave of the JVP is produced by atrial contraction. In atrial fibrillation, there is no coordinated atrial contraction; instead, the atria are fibrillating chaotically. Consequently, the 'a' wave disappears from the JVP waveform and is replaced by small, irregular fibrillatory 'f' waves. Therefore, an absent 'a' wave is the characteristic JVP finding in a patient with atrial fibrillation. Cannon 'a' waves (Option B) are seen in AV dissociation, such as complete heart block or ventricular tachycardia.

Question 132. A 60-year-old woman presents with shortness of breath and episodes of angina. Evaluation reveals aortic stenosis. What is the most likely mechanism responsible for her chest pain?

A. Increased pressure in aorta

B. Decreased pressure in aorta

C. Increased oxygen consumption in the heart

D. Increase in volume overload of the heart

Correct answer: C

Angina pectoris in the setting of severe aortic stenosis (AS) is due to a mismatch between myocardial oxygen supply and demand. In AS, the left ventricle (LV) has to generate extremely high pressures to pump blood across the stenotic aortic valve. This chronic pressure overload leads to significant concentric left ventricular hypertrophy (LVH). A hypertrophied myocardium has a massively increased oxygen demand (consumption) due to the increased muscle mass and wall stress. At the same time, myocardial oxygen supply can be compromised. The high intraventricular pressures during systole compress the subendocardial coronary arteries, reducing coronary blood flow, especially during exercise when diastolic filling time is shortened. This combination of dramatically increased oxygen demand and potentially reduced supply results in subendocardial ischemia, which manifests as angina, even in the absence of coronary artery disease.

Question 133. A 15-year-old patient presents with joint swelling, a pansystolic murmur, raised ESR, and a negative rheumatoid factor. There is a recent MEDINK CHAPTER 09_MEDICINE history of sore throat, along with subcutaneous nodules and erythema marginatum on examination. What is the most likely diagnosis?

A. Acute rheumatic fever

B. Seronegative rheumatoid arthritis

C. Juvenile idiopathic arthritis

D. Ankylosing spondylitis

Correct answer: A

This clinical presentation is a textbook case of Acute Rheumatic Fever (ARF), diagnosed using the Jones criteria. The recent history of a sore throat suggests a preceding Group A Streptococcus infection. The patient exhibits several major criteria : 1) Carditis, indicated by the new pan-systolic murmur (likely mitral regurgitation); 2) Polyarthritis, described as joint swelling; 3) Subcutaneous nodules; and 4) Erythema marginatum. The elevated ESR is a minor criterion. ARF is a post-infectious, non-suppurative inflammatory disease that affects the heart, joints, skin, and central nervous system. The combination of multiple major criteria following a streptococcal infection is diagnostic. The other options are forms of chronic autoimmune arthritis, which have different clinical patterns and are not associated with a preceding sore throat or this specific combination of skin findings.

Question 134. A patient presents with wheezing that improves with as-needed albuterol. Spirometry shows an FEV_1 between 70% and 83%, and the patient reports nighttime chest tightness occurring twice per week. What is the most appropriate treatment?

A. Continue with albuterol

B. Replace with salmeterol twice daily

C. Start Tab prednisolone

D. Add an inhaled corticosteroid

Correct answer: D

This patient's symptoms are consistent with mild persistent asthma. According to asthma management guidelines (like GINA), a patient who requires a short-acting beta-agonist (SABA), like albuterol, for symptom relief more than twice a week, or has nighttime awakenings due to asthma, is no longer considered to have

Question 135. Question 284.A farmer presents with severe leg pain accompanied by fever, chills, retro-orbital pain, and bilateral conjunctival suffusion. What is the most likely diagnosis?

A. Dengue fever

B. Leptospirosis

C. Malaria

D. Rickettsia infection

Correct answer: B

This constellation of symptoms is highly characteristic of leptospirosis. A farmer is at occupational risk of this zoonotic disease, caused by the spirochete Leptospira, which is transmitted through contact with water or soil contaminated by infected animal urine. The classic presentation of the initial septicemic phase includes an abrupt onset of high fever, chills, headache (often retro-orbital), and severe myalgia. The myalgia is particularly prominent in the

calves, causing severe pain and tenderness. The most specific sign described is bilateral conjunctival suffusion, which is redness of the conjunctiva without an inflammatory exudate, and it is a pathognomonic feature of leptospirosis. While dengue (A) can cause fever and retro-orbital pain, the severe calf pain and conjunctival suffusion make leptospirosis a much more likely diagnosis.

Question 136. An alcoholic patient with a 10-day history of binge drinking presents with altered sensorium, slurred speech, and unconsciousness, and is found to have a blood glucose level of 49 mg/dL. What is the most appropriate treatment?

A. Intravenous thiamine infusion followed by dextrose

B. Intravenous dextrose followed by thiamine infusion

C. Only dextrose infusion

D. Oral thiamine followed by dextrose

Correct answer: A

The patient is presenting with hypoglycemia and altered mental status, likely compounded by alcohol intoxication and potential Wernicke-Korsakoff syndrome. The critical management principle is the sequence of thiamine and glucose administration. Chronic alcoholics are often thiamine (vitamin B1) deficient. Thiamine is an essential cofactor for enzymes in glucose metabolism. If a glucose load (dextrose) is administered before thiamine, the sudden increase in metabolic demand can precipitate or acutely worsen Wernicke's encephalopathy, an irreversible neurological emergency. Therefore, the absolute standard of care is to administer thiamine first (intravenously to ensure rapid delivery in an unconscious patient), followed by intravenous dextrose to correct the life-threatening hypoglycemia. Giving dextrose first (Option B) is dangerous. Oral thiamine (Option D) is not appropriate for an unconscious patient.

Question 137. A patient presents with perioral pigmentation, hypotension (BP 90/60), hyponatremia (Na+ 125 mEq/L), and hyperkalemia (K+5.5 mEq/L). What is the most appropriate treatment?

A. ACTH

B. Hydrocortisone

C. Dexamethasone

D. Sodium chloride infusion

Correct answer: B

This patient is in an adrenal (Addisonian) crisis. The presentation of hypotension, hyponatremia, hyperkalemia, and hyperpigmentation (perioral and elsewhere) points to primary adrenal insufficiency with deficiencies in both cortisol and aldosterone. This is a life-threatening emergency that requires immediate treatment. The cornerstone of management is aggressive volume resuscitation with intravenous fluids (like normal saline) and immediate stress-dose glucocorticoid replacement. The glucocorticoid of choice is hydrocortisone, as it has both

glucocorticoid and mineralocorticoid activity, helping to correct the cortisol deficiency, stabilize blood pressure, and correct electrolyte abnormalities. It is typically given as a 100 mg IV bolus followed by continuous infusion or intermittent boluses. Dexamethasone (C) can also be used but lacks mineralocorticoid effects. ACTH (A) is used for diagnostic testing, not treatment. Saline infusion (D) is vital but insufficient without steroid replacement.

Question 138. Pleural fluid analysis shows an LDH level greater than 0.6 times the serum LDH and a protein level exceeding 0.5 times the serum protein. Based on these findings, what is the most likely diagnosis?

A. Tuberculosis

B. Heart failure

C. Hepatic failure

D. Renal failure

Correct answer: A

The laboratory values provided are used in Light's criteria to differentiate between an exudative and a transudative pleural effusion. A pleural effusion is classified as exudative if it meets at least one of the following : 1) Pleural fluid protein / serum protein ratio > 0.5; 2) Pleural fluid LDH / serum LDH ratio > 0.6; or 3) Pleural fluid LDH > two-thirds of the upper limit of normal for serum LDH. This patient's fluid meets the first two criteria, confirming it is an exudate. Exudative effusions are caused by inflammation or disease of the pleural surface, leading to increased capillary permeability. The most common causes are malignancy, pneumonia, and tuberculosis. In contrast, heart failure (B), cirrhosis (hepatic failure, C), and nephrotic syndrome (renal failure, D) are classic causes of transudative effusions, which result from imbalances in hydrostatic or oncotic pressures.

Question 139. A 45-year-old patient presents with anemia, depigmented hair, and features of myelopathy. Which mineral deficiency is most likely responsible for this presentation?

A. Copper

B. Iron

C. Fluoride

D. Zinc

Correct answer: A

Copper deficiency can present with a wide range of hematological and neurological manifestations. The anemia is often microcytic or normocytic and can be accompanied by neutropenia. The depigmented hair (achromotrichia) and skin hypopigmentation occur because tyrosinase, the enzyme responsible for melanin synthesis, is a copper-dependent enzyme. The most serious complication is a progressive myelopathy that closely mimics the subacute combined degeneration seen in vitamin B12 deficiency. It involves both the posterior columns

(affecting proprioception and vibration sense) and the corticospinal tracts (causing spasticity and weakness). This combination of anemia, pigmentary changes, and a B12-like myelopathy is highly characteristic of acquired copper deficiency, which can be seen after bariatric surgery or with excess zinc intake.

Question 140. A patient with long-standing hypertension presents with atrial fibrillation, shortness of breath, and bilateral basal crackles on lung auscultation. Which of the following would be least important in the management of this patient?

A. Start on anticoagulants

B. Start beta-blocker

C. Cardioversion to correct rhythm if hemodynamically remains unstable even after medical management

D. IV Digoxin for control rate

Correct answer: B

This patient has long-standing hypertension with atrial fibrillation, shortness of breath, and bilateral basal crackles, which suggests acute decompensated heart failure with pulmonary congestion. In such a situation, the priority

Question 141. A routine ECG shows a PR interval of 0.21 seconds. What is the appropriate interpretation of this finding?

A. Second degree heart block

B. First degree heart block

C. Normal rhythm

D. Complete heart block

Correct answer: B

The PR interval on an electrocardiogram (ECG) represents the time taken for the electrical impulse to travel from the sinoatrial (SA) node, through the atria, and through the atrioventricular (AV) node. A normal PR interval is between 0.12 and 0.20 seconds (120-200 milliseconds), which corresponds to 3-5 small squares on standard ECG paper. A PR interval that is prolonged beyond 0.20 seconds but is constant, with every P wave being followed by a QRS complex, defines a first-degree heart block. This is not a true block but rather a delay in conduction through the AV node. A PR interval of 0.21 seconds (210 ms) is just beyond the upper limit of normal, therefore it is correctly interpreted as first-degree heart block. It is often a benign finding.

Question 142. ABG shows pH = 7.2, /HCOmEq L63 =- , pCO222 = mmHg, / ,SodiummEq L136=/ ,ClmEq L K112=-+ ./mEq L5 3=. What is the correct interpretation?

A. Respiratory acidosis with metabolic alkalosis with normal anion gap

B. Respiratory acidosis with metabolic alkalosis with high anion gap

C. Metabolic acidosis with respiratory alkalosis with normal anion gap

D. Metabolic acidosis with respiratory alkalosis with high anion gap

Correct answer: D

Let's break down the ABG and electrolytes :1. pH : 7.2 is low, indicating acidosis.2. Primary Disorder : is very low (6 mEq/L), which causes metabolic acidosis. is also low (22 mmHg), which would cause alkalosis. Since the pH is acidotic, the primary disorder is metabolic acidosis.3. Compensation : The low indicates a compensatory respiratory alkalosis (the body is hyperventilating to blow off and raise the pH). To check if it's appropriate, Winter's formula can be used : Expected . The actual of 22 is close, so there is appropriate respiratory compensation.4. Anion Gap (AG) : AG = = 136 - (112 + 6) = 136 - 118 = 18.Since the normal AG is 8-12, an AG of 18 is elevated.Thus, the correct interpretation is a high anion gap metabolic acidosis with respiratory compensation.

Question 143. In stage 3 beta-cell destruction of Type 1 Diabetes Mellitus, which of the following clinical presentations is most likely?

A. Hyperglycemia symptomatic

B. Dysglycemic symptomatic

C. Normoglycemic symptomatic

D. Dysglycemic asymptomatic

Correct answer: A

The staging of Type 1 Diabetes Mellitus (T1DM) describes the progression of the autoimmune disease.

Question 144. A patient with myasthenia gravis who is being treated with mycophenolate and pyridostigmine presents with hypercalcemia. Which additional condition could be associated with this finding?

A. Drug induced

B. Parathyroid adenoma

C. Small Cell Lung Cancer (SCLC)

D. Non-Small Cell Lung Cancer (NSCLC)

Correct answer: B

While the patient has Myasthenia Gravis (MG), hypercalcemia is not a direct feature of MG or a common side effect of its standard treatments. The most common cause of hypercalcemia in an outpatient setting is primary hyperparathyroidism, which is most frequently caused by a benign parathyroid adenoma. This adenoma autonomously secretes parathyroid hormone (PTH), leading to increased bone resorption, increased renal calcium reabsorption, and increased intestinal calcium absorption, all of which elevate serum calcium levels. Malignancy is the most common cause in hospitalized patients. While some cancers can cause hypercalcemia, it's

typically squamous cell NSCLC (secreting PTHrP) or bone metastases, not usually SCLC (which causes SIADH). The link to MG is tenuous, but

Question 145. A patient presents with hypotension, hyponatremia, and dark pigmentation of the palmar creases. Which condition is most likely responsible for these findings?

A. Conn syndrome

B. Cushing's syndrome

C. Primary ACTH deficiency

D. Addison disease

Correct answer: D

The clinical triad of hypotension, hyponatremia, and hyperpigmentation is classic for Addison's disease, which is primary adrenal insufficiency. This condition results from the destruction of the adrenal cortex, leading to a deficiency of both glucocorticoids (cortisol) and mineralocorticoids (aldosterone). The lack of aldosterone causes renal sodium wasting and potassium retention, leading to hyponatremia, hyperkalemia, and volume depletion, which results in hypotension. The deficiency of cortisol leads to a loss of negative feedback on the pituitary gland, resulting in a massive compensatory increase in the secretion of Adrenocorticotropic hormone (ACTH) and its precursor, pro-opiomelanocortin (POMC). POMC also contains the sequence

Question 146. A patient presents with enlarged, sweaty hands, macroglossia, and frontal bossing. What is the most appropriate test to confirm the diagnosis?

A. GHRH levels

B. IGF-1

C. IGF-2

D. GH levels after glucose suppression

Correct answer: B

The clinical features described—enlarged sweaty hands, macroglossia, and frontal bossing—are characteristic of Acromegaly, a disorder caused by excess secretion of growth hormone (GH), usually from a pituitary adenoma. Excess GH leads to increased production of insulin-like growth factor-1 (IGF-1) in the liver, which mediates most of the tissue growth and metabolic effects seen in acromegaly.For diagnosis, the most appropriate initial screening test is measurement of IGF-1 levels. IGF-1 is preferred because its concentration remains relatively stable throughout the day, reflecting the average GH secretion. In contrast, growth hormone levels fluctuate widely due to pulsatile secretion, making random GH measurements unreliable.If IGF-1 levels are elevated, the diagnosis is usually confirmed by a glucose suppression test, in which GH levels are measured after oral glucose administration. In normal individuals, glucose suppresses GH secretion, but in acromegaly GH levels fail to suppress.Thus,

serum IGF-1 measurement is the best test to confirm suspected acromegaly initially.

Question 147. A patient presented with a blood pressure of 160/110 mm Hg, and a CT scan of the head

A. Type 1 von Willebrand disease presents with severe bleeding since childhood.

B. Type 2 von Willebrand disease is associated with a moderate bleeding tendency.

C. Type 3 von Willebrand disease is associated with a complete absence of factor VIII.

D. Type 2 von Willebrand disease includes subtypes with varying defects in von Willebrand factor.

Correct answer: C

von Willebrand disease is the most common inherited bleeding disorder and results from deficiency or dysfunction of von Willebrand factor (vWF). vWF plays an important role in platelet adhesion and also helps stabilize factor VIII in circulation.Type 1 von Willebrand disease is the most common and mildest form, caused by a partial quantitative deficiency of vWF. Patients usually present with mild mucocutaneous bleeding, such as epistaxis, menorrhagia, or easy bruising, rather than severe bleeding since childhood.Type 2 von Willebrand disease is a qualitative defect in vWF and includes several subtypes (2A, 2B, 2M, 2N) with different functional abnormalities. These patients typically have a moderate bleeding tendency.Type 3 von Willebrand disease is the most severe form, characterized by a near-complete absence of vWF. Because vWF stabilizes factor VIII, its levels are markedly reduced, but factor VIII is not completely absent.Therefore, statement (C) is incorrect because factor VIII is reduced but not completely absent in Type 3 von Willebrand disease.

Question 148. What is the most common cause of death in patients with idiopathic pulmonary fibrosis (IPF)?

A. Respiratory failure

B. Pulmonary edema

C. Cancer

D. Pulmonary arterial hypertension (PAH)

Correct answer: A

Idiopathic Pulmonary Fibrosis (IPF) is a chronic, progressive, and fibrosing interstitial pneumonia

Question 149. A patient presents with headache and confusion and is diagnosed with a brain tumor. Family history reveals the presence of both brain and kidney tumors. What is the most likely diagnosis?

A. Neurofibromatosis

B. Li-Fraumeni syndrome

C. VHL syndrome

D. Churg-Strauss syndrome

Correct answer: C

The combination of a brain tumor (specifically a hemangioblastoma of the cerebellum or spinal cord) and a kidney tumor (specifically clear cell renal cell carcinoma), along with a positive family history, is the classic presentation of von Hippel-Lindau (VHL) syndrome. VHL is an autosomal dominant disorder caused by a mutation in the VHL tumor suppressor gene. This genetic predisposition leads to the development of a variety of benign and malignant tumors in multiple organs. The most common manifestations are hemangioblastomas of the central nervous system and retina, clear cell renal cell carcinoma, and pheochromocytomas. The patient's presentation fits this pattern perfectly. Neurofibromatosis (A) is associated with neurofibromas and optic gliomas. Li-Fraumeni syndrome (B) has a different spectrum of tumors (sarcomas, breast cancer, leukemia).

Question 150. Which disease is characterized by having the largest hidden or submerged component in the iceberg model of disease?

A. Influenza

B. Tetanus

C. Chickenpox

D. Rabies

Correct answer: A

The iceberg model of disease illustrates that for many conditions, the number of clinically apparent cases (the tip of the iceberg) is much smaller than the total number of people who are infected or affected (the submerged portion). The submerged part includes asymptomatic carriers, individuals with subclinical or undiagnosed infections, and those who are presymptomatic. Among the options given, influenza best fits this model. A large proportion of individuals infected with the influenza virus experience very mild symptoms that do not prompt them to seek medical care, or they may be completely asymptomatic, yet they can still transmit the virus. In contrast, diseases like rabies (Option D) and tetanus (Option B) are almost invariably fatal or severely symptomatic once the clinical disease develops; they have virtually no

Question 151. A woman delivers her baby in a rural setting under the supervision of a skilled care attendant. Which of the following statements regarding the care provided by a skilled care attendant at birth is incorrect?

A. Start breast feeding as early as possible

B. Cover the baby's head and body

C. Bathe the baby with warm water

D. Clear the eyes with a sterile swab

Correct answer: C

According to essential newborn care guidelines, including those from the WHO and practiced in

India, a newborn should not be bathed immediately after birth. The vernix caseosa, the white, waxy substance covering the baby's skin, is protective and helps with thermoregulation and skin hydration. Bathing a newborn too soon (Option C) can lead to hypothermia, which is a significant risk for neonatal morbidity and mortality. The first bath is typically delayed for at least 6-24 hours until the baby's temperature has stabilized. All the other options are correct and essential components of immediate newborn care : starting breast feeding within the first hour (Option A) is crucial for nutrition and immunity; covering the baby's head and body immediately after drying (Option B) is vital to prevent heat loss; and clearing the eyes with a sterile swab (Option D) is part of routine care to prevent infection.

Question 152. Which of the following indicators is not included as a component of the Physical Quality of Life Index (PQLI)?

A. Life expectancy at 1 year

B. Literacy rate

C. Infant mortality rate

D. Gross National Product

Correct answer: D

No explanation is available for this recall question yet.

Question 153. A statistician aims to study the effect of a medicine across three distinct groups—humans, animals, and plants—and then randomly selects subjects from each of these groups. Which type of sampling method is being used?

A. Simple random sampling

B. Systematic sampling

C. Stratified random sampling

D. Cluster sampling

Correct answer: C

The sampling method described is stratified random sampling. This technique involves dividing the entire population into distinct, non-overlapping subgroups or strata based on a shared characteristic. In this case, the population is divided into three strata : humans, animals, and plants. After dividing the population into these strata, the statistician then performs a random sampling from within each stratum. This method ensures that each subgroup is adequately represented in the final sample, which can improve the precision of the estimates and allow for comparisons between the groups. Simple random sampling (Option A) would involve selecting randomly from the entire mixed population without any subdivision. Cluster sampling (Option D) would involve dividing the population into clusters and then randomly selecting entire clusters to sample.

Question 154. Which phases of the disaster management cycle are directly

associated with the recovery phase following a disaster?

A. Response and Rehabilitation

B. Mitigation and Rehabilitation

C. Response and Preparedness

D. Mitigation and Preparedness

Correct answer: A

The disaster management cycle is typically divided into four phases : Mitigation, Preparedness, Response, and Recovery. The Recovery phase is the period after the immediate impact of the disaster, focused on restoring the community to a normal or improved state. This phase itself has short-term and long-term components. The immediate actions after the disaster, such as search and rescue, providing emergency medical care, food, and shelter, are part of the Response phase. These actions transition into the Rehabilitation and Reconstruction phase, which involves restoring services, rebuilding infrastructure, and providing psychosocial support. Therefore, both Response (immediate actions) and Rehabilitation (longer-term restoration) are key components that constitute the overall recovery process. Mitigation and Preparedness (Options B, C, D) are pre-disaster activities aimed at reducing the impact and preparing to handle a future disaster.

Question 155. A pregnant woman delivers a healthy baby through normal vaginal delivery. What is the earliest time at which an intrauterine contraceptive device (IUCD) can be safely inserted?

A. Within 48 hours

B. After 6 weeks

C. After 3 months

D. After 1 month

Correct answer: A

An intrauterine contraceptive device (IUCD) can be inserted at several points after childbirth. The earliest opportunity is post-placental insertion, which is done within 10 minutes of placental delivery. If this window is missed, the next opportunity is immediate postpartum insertion, which can be done within 48 hours of delivery, before the woman is discharged from the hospital. This is a safe and convenient time for many women to receive effective long-term contraception. If insertion is not done within 48 hours, it is generally recommended to wait until the puerperal period is over, typically at the postnatal check-up around 6 weeks postpartum (Option B), to allow the uterus to fully involute and reduce the risk of expulsion or perforation. Therefore, the earliest time frame among the given options is within 48 hours.

Question 156. Which of the following food items should be included in the diet to prevent deficiency of thiamine (vitamin B_1)?

A. Rice and wheat

B. Curd

C. Salad

D. Sabji (Aloo)

Correct answer: A

Thiamine (Vitamin B1) is essential for carbohydrate metabolism. The best dietary sources of thiamine are whole grains, legumes, nuts, and lean pork. Therefore, consuming rice and wheat, especially in their unpolished or whole-grain forms (like brown rice and whole wheat flour), is an effective way to obtain thiamine and prevent deficiency. The refining process, such as polishing rice, removes the bran and germ, which contain most of the thiamine, leading to a risk of deficiency (beriberi) in populations that rely heavily on polished rice as a staple. Curd (yogurt, Option B) is a good source of calcium and protein. Salad vegetables (Option C) and potatoes (Aloo sabji, Option D) contain some vitamins but are not considered primary, rich sources of thiamine compared to whole grains and legumes.

Question 157. What does JSSK stand for?

A. Janani Shishu Suraksha Karyakram

B. Janani Shishu Swasthya Karyakram

C. Janani Shishu Suraksha Kendra

D. Janani Shishu Swasthya Kendra

Correct answer: A

JSSK stands for Janani Shishu Suraksha Karyakram. This is a significant initiative launched by the Government of India in 2011 under the National Health Mission. The primary objective of the program is to reduce maternal and infant mortality by eliminating

Question 158. A formula that uses the number of maternal deaths as the numerator and the total number of women of reproductive age as the denominator is used to calculate which maternal health indicator?

A. Maternal mortality rate

B. Maternal mortality ratio

C. Perinatal mortality rate

D. Perinatal mortality ratio

Correct answer: A

This question tests the precise definitions of maternal mortality indicators. The Maternal Mortality Rate (MMRate) is calculated as the number of maternal deaths in a given period divided by the number of women of reproductive age (typically 15-49 years) in the same period, usually expressed per 100,000 women. It measures the risk of dying from maternal causes for a woman in the reproductive age group. In contrast, the Maternal Mortality Ratio (MMRatio) (Option B), which is the most commonly used indicator, is calculated as the number of maternal deaths divided by the number of live births in the same period, expressed per

100,000 live births. The MMRatio measures the obstetric risk associated with each pregnancy. Perinatal mortality (Options C and D) refers to stillbirths and deaths in the first week of life. The key distinction is the denominator : women of reproductive age for the Rate, and live births for the Ratio.

Question 159. A group of 80 individuals is studied to assess the impact of dietary modification on cholesterol levels. To compare the mean cholesterol levels of the same group before and after the dietary intervention, which statistical test should be used?

A. Paired t-test

B. McNemar test

C. Chi-square test

D. Wilcoxon signed-rank test

Correct answer: A

The study design involves measuring a continuous variable (cholesterol level) on the same group of subjects at two different time points (before and after the intervention). This is a paired or repeated-measures design. The paired t-test is the appropriate statistical test for comparing the means of two related groups. It assesses whether there is a statistically significant difference between the two sets of measurements by analyzing the mean of the differences between the paired observations. The Chi-square test (Option C) and McNemar test (Option B) are used for categorical data. The Wilcoxon signed-rank test (Option D) is the non-parametric equivalent of the paired t-test and would be used if the data did not meet the assumption of normality, but the paired t-test is the standard parametric choice.

Question 160. A study is conducted to determine whether there is an association between dietary habits (vegetarian versus non-vegetarian) and the presence of disease. Which statistical test is most appropriate for analyzing this relationship?

A. Chi-square test

B. T-test

C. ANOVA

D. Fisher's exact test

Correct answer: A

This study is examining the association between two categorical variables. The first variable is type of diet (with categories : vegetarian, non-vegetarian). The second variable is presence of disease (with categories : yes, no). The Chi-square test of independence is the appropriate statistical test to determine if there is a significant association between two categorical variables. It compares the observed frequencies in each category of a contingency table to the frequencies that would be expected if there were no relationship between the variables. A t-test (Option B) is used to compare the means of two groups on a continuous variable. ANOVA

(Option C) compares the means of three or more groups. Fisher's exact test (Option D) is used for categorical data like the Chi-square test, but it is typically reserved for situations where the sample size is small and expected frequencies are low.

Question 161. To study the effect of vitamin C on respiratory disease, a study is conducted. Arrange the following steps in the correct sequence :1. Select case and control2. Matching3. Measure total exposure4. AnalysisWhich of the following options correctly represents the proper sequence or order?

A. 1234"""

B. 2134"""

C. 1324"""

D. 3124"""

Correct answer: A

The steps described correspond to the design and conduct of a case–control study.1. Select case and control (Step 1) : First, researchers identify individuals with the disease (cases) and individuals without the disease (controls).2 Matching (Step 2) : Controls are often matched with cases based on factors such

Question 162. Arrange the following stages of the demographic cycle in the correct chronological order1. Declining2. High stationary3. Low stationary4. Late expanding5. Early expandingWhich of the following options shows the correct order?

A. 25431"""""

B. 52413"""""

C. 24315"""""

D. 12354"""""

Correct answer: A

The demographic cycle (demographic transition model) describes the changes in birth rate, death rate, and population growth as a country develops economically and socially. It progresses through five stages in a fixed chronological order.1. High stationary stage (Stage 1) : Both birth rate and death rate are high, resulting in low population growth. This stage is typical of primitive or pre-industrial societies.2. Early expanding stage (Stage 2) : Death rate declines rapidly due to improvements in healthcare, sanitation, and nutrition, while birth rate remains high, leading to rapid population growth.3. Late expanding stage (Stage 3) : Birth rate begins to decline due to factors such as urbanization, education, and family planning, while death rates remain low.4. Low stationary stage (Stage 4) : Both birth rate and death rate become low, resulting in stable or slow population growth.5. Declining stage (Stage 5) : Birth rate falls below death rate, leading to population decline.Thus, the correct chronological order is : High stationary → Early expanding → Late expanding

Question 163. Given the following data—500 live births, 12 stillbirths, and 9 deaths occurring within the first 7 days of life—how is the early neonatal mortality rate calculated?

A. 18 per 1,000 live births

B. 36 per 1,000 live births

C. 24 per 1,000 live births

D. 50 per 1,000 live births

Correct answer: A

The Early Neonatal Mortality Rate (ENMR) is defined as the number of deaths of live-born infants during the first 7 completed days of life (i.e., day 0 to day 6), per 1,000 live births in a given year or period.The formula is : ENMR = (Number of deaths in the first 7 days / Total number of live births) × 1000 Using the data provided : Number of deaths within the first 7 days = 9Total number of live births = 500The number of stillbirths (12) is not used in the calculation of ENMR, as the denominator is specifically live births.Calculation :ENMR = (9 / 500) × 1000ENMR = 0.018 × 1000ENMR = 18 per 1,000 live births

Question 164. Calculate the maternal mortality ratio (MMR) for the year 2023, given the following data :1. Total live births : 4,0002. Women who died : 6 (1 due to a road traffic accident (RTA), 1 due to sepsis, 1 due to obstructed labor, 1 due to eclampsia, 1 due to ectopic pregnancy, and 1 due to a snake bite)

A. 75 per 100,000 live births

B. 150 per 100,000 live births

C. 100 per 100,000 live births

D. 125 per 100,000 live births

Correct answer: C

The Maternal Mortality Ratio (MMR) is defined as the number of maternal deaths per 100,000 live births. A maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause

Question 165. A man develops bilateral, non-inflammatory edema after consuming a specific type of oil. Which test should be performed by the drug inspector to detect the presence of an adulterant in the oil?

A. Paper chromatography test

B. Nitric acid test

C. Methylene Blue Reduction Test

D. Baudouin test

Correct answer: B

The clinical presentation of bilateral, non-pitting edema of the legs, often accompanied by erythema, diarrhea, and cardiac symptoms, after consuming edible oil is classic for epidemic

dropsy. This condition is caused by poisoning from the toxic alkaloid sanguinarine. Sanguinarine contamination occurs when mustard oil (a common cooking oil in India) is adulterated with oil from the seeds of the Argemone mexicana (Mexican poppy) plant. The field test used by food inspectors to detect this specific adulteration is the nitric acid test. When concentrated nitric acid is added to the suspected oil sample and shaken, the development of a reddish-brown color in the acid layer indicates the presence of sanguinarine

Question 166. If the incubation period of a disease ranges from 5 to 14 days, what should be the appropriate duration of quarantine?

A. 5 days

B. 10 days

C. 14 days

D. 20 days

Correct answer: C

Quarantine is the restriction of movement of healthy individuals who have been exposed to a communicable disease, for a duration of time to see if they become ill. The purpose is to prevent transmission during the incubation period if they are indeed infected. The quarantine period is determined by the longest known incubation period for the specific disease. This ensures that if the exposed person is going to develop the disease, they will do so while they are separated from the general population. In this case, the incubation period is given as a range of 5-14 days. Therefore, the quarantine period should be set at the maximum possible incubation period, which is 14 days. This provides a sufficient window to cover nearly all individuals who would develop the disease after exposure.

Question 167. What term is used to describe the time interval between the entry of an infectious agent into the host and the stage at which the host becomes maximally infectious?

A. Generation Time

B. Incubation Period

C. Latent Period

D. Prodromal Period

Correct answer: A

This question asks for a specific epidemiological term. Generation time is the time interval between the receipt of infection by a host and the point of maximal communicability or infectivity of that host. It essentially measures the time it takes for a newly infected individual to become maximally infectious to others. This is an important parameter for modeling disease spread. It is different from the incubation period

Question 168. What is the correct sequence of steps involved in disaster

management?

A. Impact → Response → Rehabilitation → Mitigation

B. Response → Rehabilitation → Impact → Mitigation

C. Rehabilitation → Mitigation → Response → Impact

D. Mitigation → Impact → Response → Rehabilitation

Correct answer: A

Disaster management follows a systematic sequence of phases to minimize the effects of disasters and help communities recover effectively.1. Impact : This is the stage when the disaster actually occurs (e.g., earthquake, flood, cyclone). It causes damage to life, property, and infrastructure.2. Response : Immediately after the disaster, emergency actions are taken to save lives and reduce suffering. This includes search and rescue operations, first aid, evacuation, providing food, shelter, and medical care.3. Rehabilitation : In this phase, efforts focus on restoring normal life. It includes rebuilding homes, restoring infrastructure, providing financial assistance, and supporting affected communities.4. Mitigation : Mitigation involves long-term measures to reduce the risk and impact of future disasters. Examples include building stronger infrastructure, disaster preparedness training, early warning systems, and improved planning.Thus, the correct chronological order is:Impact → Response → Rehabilitation → Mitigation, which corresponds to Option (A).

Question 169. In the Health Education model, after the first step of Awareness and the second step of Motivation, what is the third step?

A. Reflection

B. Dedication

C. Contemplation

D. Action

Correct answer: D

Many models of health education and behavior change follow a similar logical progression. After an individual becomes aware of a health issue and is then motivated to do something about it, the next logical and crucial step is to translate that motivation into a concrete behavior. This step is commonly referred to as Action or Decision Making/Implementation. The individual must take the necessary steps to adopt the new, healthier behavior (e.g., start exercising, quit smoking, get vaccinated). This involves not just the decision but also the practical implementation of that decision. Contemplation (Option C) is a stage that often precedes motivation in models like the Transtheoretical Model. Reflection and dedication are related concepts but Action is the standard term for the third step in this simplified awareness-motivation framework.

Question 170. Under the Ayushman Bharat programme’s School Health Services, which of the following components is not included?

A. Providing sanitary pads

B. Health check-up/screening

C. Albendazole provision

D. Monthly Iron Folic Acid Supplementation

Correct answer: A

The School Health Programme under Ayushman Bharat (Health and Wellness Centres) is a joint initiative of the Ministry of Health & Family Welfare and the Ministry of Education in India. It aims to promote health awareness, preventive healthcare, and early detection of diseases among school children.Key components of the School Health Services include:

Question 171. Which vaccine should be stored at the lowest level of an Ice-Lined Refrigerator (ILR)?

A. OPV

B. DPT

C. Hep B

D. Rota

Correct answer: A

Ice-Lined Refrigerators (ILRs) are used in the vaccine cold chain to maintain a stable temperature between +2°C and +8°C. However, there is a temperature gradient within the refrigerator, with the bottom being the coldest part, sometimes approaching 0°C. Vaccines are arranged according to their sensitivity to heat and cold. Oral Polio Vaccine (OPV) is the most heat-sensitive vaccine in the routine immunization schedule, but it is also freeze-resistant. Therefore, OPV and other polio vaccines are placed in the bottom basket of the ILR, where it is coldest, to maximize their

Question 172. An impaired gag reflex results from damage to which cranial nerves?

A. CN V & VI

B. CN X & XI

C. CN IX & X

D. CN VII & VIII

Correct answer: C

The gag reflex is a brainstem reflex that involves two primary cranial nerves. The afferent (sensory) limb of the reflex arc is mediated by the glossopharyngeal nerve (CN IX), which carries sensory information from the posterior tongue, pharynx, and soft palate. The efferent (motor) limb is primarily carried by the vagus nerve (CN X), which innervates the muscles of the soft palate and pharynx, causing them to contract and elevate during the gag response. A lesion affecting either the sensory input (CN IX) or the motor output (CN X) will result in an impaired or absent gag reflex. Therefore, the combination of CN IX and CN X is correct. The other nerve pairings are not involved in this specific reflex : CN V (sensation to anterior face),

CN VI (lateral rectus muscle), CN VII (facial expression), CN VIII (hearing/balance), CN XI (sternocleidomastoid/trapezius).

Question 173. In a patient diagnosed with right-sided vestibular neuronitis, what finding would be expected on performing the head impulse (head thrust) test?

A. Head turned to right, eyeball moves to left with nystagmus

B. Head turned to left, eyeball moves to right with nystagmus

C. Head turned to right, eyeball moves to right with nystagmus

D. Head turned to left, eyeball moves to left with nystagmus

Correct answer: A

The head impulse (head thrust) test is used to assess the vestibulo-ocular reflex (VOR). In a normal VOR, when the head is rapidly rotated, the eyes move in the opposite direction to keep gaze fixed on the target.In right vestibular neuronitis, the right horizontal semicircular canal and nerve are impaired.When the examiner quickly turns the head to the right (affected side), the vestibular system cannot generate the compensatory eye movement.As a result, the eyes briefly move with the head (to the right) and then make a corrective saccade to the left to refocus on the target.This appears as the eyeball moving to the left with a corrective saccade/ nystagmus after a head thrust to the right.Thus, the abnormal finding is : Head turned to right fv eyeball moves to left with corrective nystagmus.

Question 174. Pure tone audiometry in a female patient demonstrates the presence of a Carhart’s notch. Which of the following findings is most likely to be seen in this patient?

A. Schwartz sign

B. Hitselberger sign

C. Hennebert sign

D. Rinne test negative (conductive hearing loss)

Correct answer: D

A Carhart’s notch is a characteristic finding on pure tone audiometry, typically seen in otosclerosis. It appears as a dip in bone conduction thresholds around 2000 Hz, caused by fixation of the stapes footplate at the oval window. This fixation disrupts normal sound transmission through the ossicular chain.Because otosclerosis primarily affects the middle ear conduction mechanism, the hearing loss is usually conductive in nature. In conductive hearing loss, the Rinne test becomes negative, meaning bone conduction is better than air conduction (BC > AC) in the affected ear.Other findings may also be associated with otosclerosis, but they are less directly linked to Carhart’s notch. Schwartz sign is a reddish blush seen on the tympanic membrane due to

Question 175. A 6-year-old woman presents with dyspnea and distended neck veins.

Further evaluation leads to a diagnosis of myasthenia gravis, and CT imaging shows an anterior mediastinal mass. What is the most likely diagnosis?

A. Thymoma

B. Aortic aneurysm

C. CA lung

D. Cardiomegaly

Correct answer: A

There is a strong and well-established association between myasthenia gravis (MG), an autoimmune disorder affecting the neuromuscular junction, and abnormalities of the thymus gland. Approximately 10-15% of patients with MG have a thymoma, which is a tumor of the thymus gland. Conversely, about 30-50% of patients with a thymoma will develop myasthenia gravis. The thymus is located in the anterior mediastinum. A large anterior mediastinal mass in a patient diagnosed with MG is, therefore, most likely a thymoma until proven otherwise. The patient's symptoms of distended neck veins and dyspnea could be due to superior vena cava (SVC) syndrome caused by

Question 176. A patient has undergone a gastrectomy. Which vitamin supplementation is required following this procedure?

A. Vitamin A

B. Vitamin C

C. Vitamin D

D. Vitamin B12

Correct answer: D

The stomach plays a crucial role in the absorption of Vitamin B12 (cobalamin). The parietal cells in the gastric mucosa secrete intrinsic factor (IF), a glycoprotein that is essential for the absorption of Vitamin B12. After being released

Question 177. A 5-year-old patient presents with hypertension, hematuria, and flank pain. MRI reveals multiple cystic lesions in both kidneys. What is the most likely diagnosis?

A. Renal cyst

B. Renal tumor

C. Autosomal Dominant Polycystic Kidney Disease (ADPKD)

D. Chronic kidney disease with cystic degeneration

Correct answer: C

The clinical triad of hypertension, hematuria, and flank pain, along with the MRI finding of bilaterally enlarged kidneys containing innumerable cysts of varying sizes, is the classic presentation of Autosomal Dominant Polycystic Kidney Disease (ADPKD). This is a common genetic disorder where the progressive growth of cysts throughout the renal parenchyma leads

to the destruction of normal kidney tissue, massive kidney enlargement, and eventual renal failure. The cysts can also cause pain by stretching the renal capsule or by bleeding into a cyst. Hypertension develops early and is a major complication. While acquired cystic disease can occur in chronic kidney disease (D), the massive enlargement and extensive cystic replacement are characteristic of ADPKD. A simple renal cyst (A) would be a solitary finding, and a tumor (B) would have a different appearance.

Question 178. TTF- is a tumor marker for which of the following?

A. Adenocarcinoma

B. Small cell carcinoma

C. Thymoma

D. Melanoma

Correct answer: A

TTF-1, which stands for Thyroid Transcription Factor-1, is a protein that plays a vital role in the normal development of the lung and thyroid gland. Because of this specific function, it serves as an excellent lineage marker in cancer pathology. Tumors that arise from lung or thyroid tissue often continue to express this protein, which helps pathologists confidently identify a tumor's origin.In the context of lung cancer, TTF-1 is invaluable. It is positive in approximately 75-85% of lung adenocarcinomas and 85-95% of small cell carcinomas. Its most critical clinical application is in diagnosing metastatic cancer of unknown primary origin. For example, if a patient has a tumor in the brain or liver, a positive TTF-1 stain on the biopsy strongly points to a primary lung cancer, which is essential for determining the correct chemotherapy regimen.TTF-1 is also positive in most thyroid cancers. In contrast, (C) Thymoma and (D) Melanoma arise from different cell lineages and are consistently negative for TTF-1, relying on other specific markers for their diagnosis.

Question 179. Which of the following is an indication for administering adjuvant radiotherapy after surgical resection and Modified Radical Neck Dissection (MRND) in oral malignancy?

A. Extranodal extension

B. Multiple lymph node metastasis

C. T3 tumor

D. Close margin

Correct answer: A

After surgical resection of an oral malignancy, adjuvant (postoperative) radiotherapy is given to reduce the risk of locoregional recurrence. The decision is based on pathological risk factors. The single most important and highest-risk feature indicating a need for postoperative radiation (often with concurrent chemotherapy) is the presence of extranodal extension (ENE), also called extracapsular spread. ENE refers to the finding of cancer cells that have breached the capsule

of a lymph node and invaded into the surrounding soft tissues of the neck. This signifies a much more aggressive disease and is associated with a significantly worse prognosis and a high risk of recurrence. While multiple positive nodes (Option B), a large primary tumor (T3, Option C), and close surgical margins (Option D) are also considered adverse features and may be indications for radiotherapy, ENE is considered the strongest indication.

Question 180. What is the most common complication associated with Total Parenteral Nutrition (TPN)?

A. Hyperglycemia

B. Rebound hyperglycemia

C. Hypoglycemia

D. Hypertriglyceridemia

Correct answer: A

No explanation is available for this recall question yet.

Question 181. A jeep driver presents with chronic gluteal pain accompanied by swelling and purulent discharge for the past six months. What is the most likely diagnosis?

A. Pilonidal sinus

B. Fistula in ano

C. Fissure in ano

D. Gluteal abscess

Correct answer: A

This clinical scenario is classic for a pilonidal sinus or pilonidal disease. This is a chronic inflammatory condition that occurs in the skin of the natal cleft (the cleft between the buttocks), superior to the anus. It is thought to be an acquired condition where loose hairs penetrate the skin, creating a pit or sinus tract that then becomes infected and forms an abscess. The abscess can discharge pus through one or more sinus openings. It is particularly common in young, hirsute males and is associated with prolonged sitting and friction, which is why it is historically known as jeep driver's disease. The location in the gluteal cleft and the chronic discharging nature are key features. A fistula-in-ano (Option B) is an abnormal tract connecting the anal canal to the perianal skin, originating lower down.

Question 182. On the third day following transplantation, by what mechanism does a skin graft receive its nutrition?

A. Imbibition

B. Inosculation

C. Neovascularization

D. A & B

Correct answer: B

The survival of a skin graft depends on it acquiring a new blood supply from the underlying wound bed. This process occurs in three phases :1. Imbibition (Days 1-2) : In the first 24-48 hours, the graft survives by absorbing nutrients and oxygen from the serous fluid that collects between the graft and the wound bed. The graft becomes edematous and gains weight during this phase.2. Inosculation (Days 3-5) : Around day 3, a crucial event called inosculation

Question 183. A woman presents with a × cm thyroid nodule. What is the next best step in management?

A. I-131

B. TSH

C. TSH & T4

D. T3 & T4

Correct answer: C

When a patient presents with a Thyroid nodule, the first step in evaluation is assessment of thyroid function through laboratory tests. Measuring serum TSH along with thyroid hormones (T4) helps determine whether the nodule is associated with hyperthyroidism, hypothyroidism, or normal thyroid function.If TSH is suppressed, it suggests a hyperfunctioning (toxic) thyroid nodule, and a

Question 184. A mother brings her 4-year-old son with intellectual disability to the outpatient department. He has joint pain and exhibits compulsive self-mutilation by biting his fingers and lips, and his serum uric acid level is elevated. What is the most likely diagnosis?

A. Lesch-Nyhan syndrome

B. Xanthine oxidase deficiency

C. CPS II defect

D. Thymidylate synthetase

Correct answer: A

The combination of neurological dysfunction (intellectual disability, dystonia), compulsive self-injurious behavior (biting lips and fingers), and profound hyperuricemia (elevated uric acid) is the pathognomonic triad for Lesch-Nyhan syndrome. This is a rare, X-linked recessive disorder of purine metabolism caused by a

Question 185. An unimmunized -year-old child presents with a white membranous coating over the throat on examination, while the sibling is immunized. What should be the first step in management?

A. Diphtheria antitoxin

B. Diphtheria toxoid

C. Penicillin

D. Isolation and supportive care

Correct answer: A

The presence of a pseudomembrane on the pharynx or tonsils in an unimmunized child is highly suspicious for respiratory diphtheria. This is a medical emergency because the disease is caused by a potent exotoxin produced

Question 186. An unimmunized -year-old child presents with a white membranous lesion on throat examination, suggestive of diphtheria. What is the appropriate prophylactic measure for a -year-old close contact who is fully immunized?

A. No prophylaxis needed

B. Toxoid

C. Immunoglobulins

D. Penicillin

Correct answer: A

The child described has features suggestive of Diphtheria, caused by Corynebacterium diphtheriae. It typically presents with fever, sore throat, and a characteristic grayish-white pseudomembrane over the tonsils or pharynx.For close contacts, management depends on their immunization status:1. Fully immunized contacts (who have completed age-appropriate diphtheria vaccination) generally do not require additional prophylaxis, as they already have protective immunity.2. Partially immunized or unimmunized contacts should receive diphtheria toxoid vaccination and may require antibiotic prophylaxis.3. Antitoxin (immunoglobulin) is used for treatment of symptomatic cases, not for routine prophylaxis in immunized contacts.In this case, the 2-year-old close contact is fully immunized, meaning the child has already received the recommended DPT/DTaP vaccinations, which provide protection against diphtheria.Therefore, no additional prophylactic intervention is required, making option (A) the correct answer.

Question 187. At what age does the brain undergo its maximum growth?

A. 1 year

B. 2 years

C. 3 years

D. 4 years

Correct answer: B

The human brain undergoes its most rapid period of growth during the first few years of life. At birth, the brain is about 25% of its adult weight. This increases dramatically, reaching about 75% of its adult weight by the age of 2 years. By age 5, it has reached approximately 90% of its adult size. This postnatal growth is not due to an increase in the number of neurons (which is largely complete at birth) but rather to an explosive increase in myelination, synaptogenesis

(the formation of connections between neurons), and the proliferation of glial cells. This early period is a critical window for cognitive, motor, and social-emotional development, and it highlights the importance of proper nutrition and environmental stimulation during infancy and toddlerhood for optimal brain development.

Question 188. A patient presents with sensory loss over the thenar eminence and the lateral three and a half fingers. At what anatomical site is the injury most likely located?

A. Carpal Tunnel syndrome

B. Median nerve at a higher level

C. Ulnar nerve

D. Radial nerve

Correct answer: B

The sensory distribution described (lateral 3 1/2 fingers) is classic for the median nerve. However, the involvement of the thenar eminence (the fleshy part at the base of the thumb) is the key to localizing the lesion. The palmar cutaneous branch of the median nerve, which supplies sensation to the thenar eminence, arises from the median nerve in the forearm, proximal to the carpal tunnel. It then travels superficial to the transverse carpal ligament to supply the skin. In Carpal Tunnel Syndrome (A), the main median nerve is compressed within the tunnel, but this superficial palmar cutaneous branch is spared. Therefore, sensation over the thenar eminence is typically preserved. The presence of sensory loss in both the fingers and the thenar eminence indicates a more proximal lesion of the median nerve at a higher level, such as in the forearm or at the elbow.

Question 189. Fracture of which part of a bone leads to disturbance of its linear growth?

A. Epiphysis

B. Diaphysis

C. Metaphysis

D. Epiphyseal plate

Correct answer: D

The epiphyseal plate, also known as the physis or growth plate, is the area of growing cartilage located between the epiphysis and metaphysis of long bones in children and adolescents. Linear (longitudinal) growth of the bone occurs at this plate through a process of endochondral ossification, where cartilage cells proliferate and are progressively replaced by bone. A fracture that extends into or across the epiphyseal plate (classified by the Salter-Harris system) can damage the delicate columns of proliferating chondrocytes. This damage can disrupt the normal growth process, potentially leading to premature fusion of the plate and subsequent growth arrest. This can result in a limb length discrepancy or an angular deformity as the bone

grows asymmetrically. Fractures confined to the diaphysis, metaphysis, or epiphysis that do not involve the growth plate do not affect linear growth.

Question 190. The patient is unable to form the O sign by opposing the thumb and index finger. Injury to which muscle is most likely responsible for this deficit?

A. Opponens pollicis

B. Flexor pollicis brevis

C. Abductor pollicis brevis

D. Flexor digitorum

Correct answer: A

The “O sign” refers to the ability to bring the thumb and index finger together to form a circle, which requires opposition of the thumb. The muscle primarily responsible for this movement is the Opponens pollicis.Opponens pollicis acts to rotate and flex the first metacarpal, allowing the thumb to oppose the fingers. This muscle is supplied by the Median nerve (specifically the recurrent branch).

Question 191. Which of the following is not a contraindication to performing External Cephalic Version (ECV)?

A. Placenta previa

B. Twin pregnancy

C. Primigravida

D. PROM (Premature Rupture of Membranes)

Correct answer: C

External Cephalic Version is a technique performed near term (around 36–37 weeks of gestation) to rotate a fetus from breech or transverse position to a head-down (cephalic) presentation by applying pressure on the maternal abdomen. This procedure helps increase the chances of vaginal delivery and reduce the need for cesarean section.Several conditions are considered contra indications to ECV because they increase the risk of complications:1. Placenta previa – manipulation may cause severe bleeding.2. Twin pregnancy – the presence of more than one fetus makes the procedure unsafe and ineffective.3. Premature rupture of membranes (PROM) – low amniotic fluid reduces success and increases complications.However, primigravida (first pregnancy) is not a contraindication. Although ECV may be slightly less successful compared to multigravida women, it can still be safely attempted.Therefore, the option not contraindicated for ECV is primigravida.

Question 192. What is the usual interval between fertilization and implantation?

A. 2 days

B. 8 days

C. 14 days

D. 16 days

Correct answer: B

After fertilization occurs in the fallopian tube, the newly formed zygote begins a journey of several days to reach the uterus. During this transit, it undergoes rapid cell division, developing into a structure called a blastocyst.This journey typically takes about 6 to 7 days. Once the blastocyst arrives in the uterus and

Question 193. In fertility-preserving surgery for uterine prolapse, which bony landmark is used for suspension?

A. Sacral promontory

B. Ischial spine

C. Pubic symphysis

D. Ischial tuberosity

Correct answer: B

In fertility-preserving surgery for uterine prolapse, procedures such as Sacrospinous hysteropexy are commonly performed. In this technique, the uterus is suspended to the sacrospinous ligament, which is located near the ischial spine.The Ischial spine serves as an important surgical landmark because the sacrospinous ligament attaches to it. During surgery, sutures are placed in the sacrospinous ligament close to the ischial spine to support and elevate the prolapsed uterus while preserving fertility.Other options are less appropriate:1. Sacral promontory – used in sacrocolpopexy, typically after hysterectomy.2. Pubic symphysis – not used for prolapse suspension procedures.3. Ischial tuberosity – mainly associated with muscle attachments, not prolapse repair.Thus, in fertility-preserving uterine suspension procedures, the ischial spine is the key bony landmark used.

Question 194. A pregnant woman is found to have an intrauterine device (IUD) in situ with the threads clearly visible, and she wishes to continue the pregnancy. What is the most appropriate next step in management?

A. Leave the IUD inside

B. Remove gently

C. MTP (Medical Termination of Pregnancy)

D. Cesarean section

Correct answer: B

When a woman becomes pregnant with an intrauterine device (IUD) in situ, there is an

Question 195. A 5-year-old woman presents with cervical erosion and a two-month history of spotting. What is the most appropriate next step in management?

A. LBC+HPV

B. Pap smear + HBV

C. Pap smear + HSV

D. LBC+HSV

Correct answer: A

The patient is presenting with symptoms (postcoital or intermenstrual spotting) and a physical finding (cervical erosion or ectropion) that require evaluation to rule out cervical dysplasia or cancer. Current cervical cancer screening guidelines for women over 30 often recommend co-testing. This involves collecting a single cervical sample to perform both a cytology test and a Human Papillomavirus (HPV) DNA test. Liquid-Based Cytology (LBC) is a newer method of Pap testing that is often preferred over the conventional Pap smear for its improved sample quality and ability to perform reflex HPV testing from the same vial. The HPV test detects the presence of high-risk HPV types, which are the causative agents of most cervical cancers. This combination of LBC and HPV testing is the most sensitive and effective screening strategy in this age group to assess the risk of cervical neoplasia.

Question 196. A pregnant woman with a known history of asthma develops postpartum hemorrhage. Which drug is contraindicated in this situation?

A. Methyl ergometrine

B. Carboprost

C. Misoprostol

D. Oxytocin

Correct answer: B

Management of postpartum hemorrhage (PPH) involves uterotonic drugs to make the uterus contract. While several agents are available, their use must be tailored to the patient's comorbidities. Carboprost tromethamine (Hemabate) is a synthetic prostaglandin analogue (PGF2α) that is a potent uterotonic. However, prostaglandins can also cause bronchoconstriction. Because of this risk, carboprost is relatively or absolutely contraindicated in patients with asthma, as it can precipitate a severe asthma attack. Oxytocin (D) is the first-line agent and is safe. Methylergometrine (A) is effective but is contraindicated in patients with hypertension or pre-eclampsia.

Question 197. A 0-year-old woman, G2L2, with cervical elongation presents for surgical management. What is the surgery of choice?

A. Fothergill

B. McCall

C. Lefort

D. Hysterectomy

Correct answer: A

The Fothergill operation, also known as the Manchester repair, is a surgical procedure specifically designed to correct uterovaginal prolapse, particularly when it is associated with

elongation of the cervix. The procedure involves a combination of an anterior colporrhaphy (repair of the anterior vaginal wall), amputation of the elongated supravaginal portion of the cervix, and plication of the uterosacral ligaments in front of the remaining cervical stump to provide support and antevert the uterus. This procedure is uterine-sparing, making it an option for women who wish to preserve their uterus, although future fertility is often compromised. A hysterectomy (D) is an option

Question 198. A young woman presents with pelvic organ prolapse and is planned for mesh repair. To which anatomical structure is the mesh typically fixed?

A. Ischial spine

B. Ischial tuberosity

C. Sacral promontory

D. Pubic symphysis

Correct answer: A

In mesh repair for pelvic organ prolapse, especially transvaginal mesh procedures or sacrospinous fixation, the mesh or sutures are anchored to the Ischial spine. The ischial spine serves as a key surgical landmark because the sacrospinous ligament attaches to it, and the mesh is fixed to this ligament to support the vaginal apex or uterus.This procedure helps restore pelvic floor support while maintaining normal pelvic anatomy.Why the other options are incorrect:1. Ischial tuberosity – mainly serves for muscle attachment and is not used for prolapse mesh fixation.2. Sacral promontory – used in Sacrocolpopexy, typically via abdominal or laparoscopic approach rather than standard transvaginal mesh repair.3. Pubic symphysis – not used as an anchoring site for prolapse mesh.Therefore, the correct answer is (A) Ischial spine.

Question 199. Which tumor marker is associated with solid-cystic masses of the ovary?

A. CEA

B. HCG

C. HER2/neu

D. AFP

Correct answer: D

When evaluating a solid-cystic (complex) adnexal mass, particularly in a younger woman, it is important to consider the possibility of a germ cell tumor. Certain germ cell tumors produce specific tumor markers. Alpha-fetoprotein (AFP) is a key marker produced by yolk sac tumors (endodermal sinus tumors), which are a type of malignant ovarian germ cell tumor.

Question 200. A G5P4 woman presents for her first routine ultrasound. She has four daughters and requests fetal sex determination, expressing a desire for a male child.

In accordance with ethical and legal guidelines, what should be your appropriate response?

A. Check routine ANC and sex for developmental abnormalities and do not reveal gender to the patient

B. Check routine ANC and sex for developmental abnormalities and do reveal gender to the patient

C. Do reveal gender if a girl

D. Check only routine ANC, do not check sex

Correct answer: A

In India, prenatal sex determination is illegal under the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994. This law was enacted to combat female foeticide and address the declining child sex ratio. It is illegal for any person to conduct or assist in conducting prenatal diagnostic techniques to determine the sex of the fetus, and it is illegal to communicate the sex of the fetus to the pregnant woman or her relatives. Therefore, the ethically and legally correct course of action for the sonographer is to perform the routine antenatal ultrasound to assess fetal well-being, growth, and to screen for developmental abnormalities (which may include examining the genitalia as part of a complete anomaly scan), but to strictly not reveal the gender to the patient or her family under any circumstances.

Question 201. A woman presents with bleeding after sexual intercourse. What is the most appropriate investigation to evaluate this symptom?

A. Pap smear, HCV DNA, electrophoresis

B. Liquid-based cytology, cervical biopsy

C. Cervical biopsy, HBV DNA

D. Pap smear, HPV DNA testing

Correct answer: D

Postcoital bleeding (bleeding after intercourse) is a potential symptom of cervical pathology, including cervical cancer, and it always warrants a thorough investigation. The initial workup should include a speculum examination to visualize the cervix and screening for cervical cancer. Current screening guidelines emphasize co-testing, which combines a Pap smear (or its modern equivalent, Liquid-Based Cytology) with HPV DNA testing. The Pap smear looks for abnormal cells (dysplasia) on the cervix, while the HPV test detects the presence of high-risk strains of the Human Papillomavirus, which is the causative agent of nearly all cervical cancers. If the speculum exam reveals a visible lesion, a direct cervical biopsy (Option B) would be performed immediately. However, in

Question 202. A 2-year-old woman presents with a newly developed cm black nodular lesion near her episiotomy scar. The lesion is painful and enlarges during menstruation. What is the most likely diagnosis?

A. Endometriosis

B. Melanoma

C. Foreign body granuloma

D. Inclusion cyst

Correct answer: A

The key feature in this clinical history is the cyclical nature of the symptoms—the mass becomes painful and larger during menstruation. This strongly suggests that the tissue is hormonally responsive, specifically to estrogen and progesterone. This is the hallmark of endometriosis, which is the presence of ectopic endometrial tissue. Scar endometriosis can occur when endometrial cells are inadvertently seeded into a surgical incision, such as an episiotomy scar or a C-section scar, during delivery. This ectopic tissue then responds to hormonal cycles, proliferating and bleeding monthly, which causes the cyclical pain and swelling. The black or bluish appearance is due to trapped, hemolyzed blood. While melanoma (B) can be a black nodule, it would not have cyclical changes. A foreign body granuloma (C) or inclusion cyst (D) would also not be expected to fluctuate with the menstrual cycle.

Question 203. On which part of the fallopian tube is tubectomy usually performed, and what is the reason for choosing this site?

A. Ampulla uniform thickness of muscle

B. Ampulla widest

C. Isthmus uniform thickness of muscle

D. Isthmus narrowest

Correct answer: D

No explanation is available for this recall question yet.

Question 204. A patient presents with scaly lesions distributed around hair follicles. What is the most likely diagnosis?

A. Pityriasis versicolor

B. Psoriasis

C. Lichen planus

D. Tinea

Correct answer: B

While several conditions can have follicular involvement, perifollicular scaly lesions can be a prominent feature of psoriasis, particularly follicular psoriasis. Psoriasis is a chronic inflammatory skin condition characterized by well-demarcated, erythematous plaques with a silvery scale. In some variants, the inflammation is centered around the hair follicles, leading to small, scaly papules at these sites. This can be an early presentation of psoriasis or a specific variant. Pityriasis versicolor (Option A) presents as hypopigmented or hyperpigmented macules with fine scale, usually on the trunk. Lichen planus (Option C) can have a follicular variant

(lichen planopilaris), which is typically scarring. Tinea (dermatophyte infection, Option D) can affect follicles (tinea capitis, tinea barbae), but perifollicular scaly lesions is a less specific description for it compared to psoriasis.

Question 205. A patient presents with pruritic skin lesions accompanied by blister formation and associated gastrointestinal symptoms. Which additional clinical or laboratory findings are most likely to be present in this condition?

A. Anti-TTG antibody

B. Anti-nuclear antibody

C. Anti-endomysial antibody

D. IgA deposits at the dermoepidermal junction

Correct answer: D

The patient's combination of an itchy, blistering skin rash and gastrointestinal issues is the classic presentation of Dermatitis Herpetiformis (DH), which is a skin manifestation of Celiac disease.The most definitive and specific finding for DH is revealed by a skin biopsy of the unaffected skin adjacent to a lesion. When examined with direct immunofluorescence, this biopsy shows

Question 206. A female patient presents with dysuria and vaginal discharge. Microscopic examination of the smear reveals pear-shaped, flagellated organisms. What is the most likely diagnosis?

A. Candida

B. Bacterial vaginosis

C. Trichomonas

D. Mixed infection

Correct answer: C

The definitive finding described in the wet mount microscopy is the presence of pear-shaped, motile, flagellated organisms. This is the classic description of Trichomonas vaginalis, a protozoan parasite that causes trichomoniasis, a common sexually transmitted infection. The infection in women typically causes a frothy, yellow-green, malodorous vaginal discharge, along with vulvovaginal irritation, dysuria, and dyspareunia. The strawberry cervix (punctate hemorrhages on the cervix) is a classic but less common physical finding. Candida (Option A) would appear as budding yeasts and pseudohyphae on a wet mount. Bacterial vaginosis (Option B) is diagnosed by the presence of clue cells (vaginal epithelial cells studded with bacteria). The microscopic description of the organism itself is pathognomonic for Trichomonas.

Question 207. A patient presents with sinus tract formation on the foot, and microscopic examination of the smear shows filamentous organisms. Which organism is the most likely cause of this condition?

A. Sporothrix

B. Nocardia

C. Dermatophytes

D. Candida

Correct answer: B

The clinical presentation of chronic subcutaneous swelling with the formation of draining sinus tracts that discharge granules is characteristic of mycetoma. The microscopic finding of filamentous organisms in a smear of the discharge or granules is the key to identifying the causative agent. Mycetoma can be caused by fungi (eumycetoma) or by filamentous bacteria (actinomycetoma). Nocardia is a genus of Gram-positive, weakly acid-fast, branching filamentous bacteria that are a common cause of actinomycetoma, especially in immunocompetent individuals following traumatic inoculation from soil. Sporothrix (Option A) is a fungus that typically causes nodular lymphangitis. Dermatophytes (Option C) are fungi that cause superficial skin infections. Candida (Option D) is a yeast that can cause various infections but does not typically present as a mycetoma with filamentous forms in this context.

Question 208. A child presents with multiple patchy areas of hair loss associated with scaling and itching, and there is a history of similar lesions in the sibling. What is the most likely diagnosis?

A. Alopecia areata

B. Tinea capitis

C. Pediculosis capitis

D. Pyoderma

Correct answer: B

The presentation of patchy alopecia (hair loss) associated with scaling and itching in a child is highly suggestive of tinea capitis, a fungal infection of the scalp hair shafts and follicles caused by dermatophytes (e.g., Trichophyton, Microsporum). The fact that a sibling has similar lesions points to an infectious and contagious etiology, which is very common with tinea capitis. Clinical patterns can vary and include black dot (broken hairs), gray patch (scaling with dull hair), or an inflammatory kerion. In contrast, alopecia areata (Option A) is an autoimmune condition that typically causes smooth, non-scaly, completely bald patches. Pediculosis capitis (head lice, Option C) causes intense itching but does not typically cause patchy hair loss and scaling. Pyoderma (Option D) is a bacterial skin infection that would present with pustules or crusting.

Question 209. A patient with a history of multiple sexual exposures is diagnosed with gonorrhea. What is the most appropriate treatment for this condition?

A. Acyclovir

B. Doxycycline

C. Cefixime

D. Penicillin

Correct answer: C

The appropriate treatment for gonorrhea is (C) Cefixime. The bacterium responsible, Neisseria gonorrhoeae, has developed widespread resistance to older antibiotics, making them ineffective.

Question 210. A 0-year-old individual who completed treatment for leprosy several years ago now presents with a painless, punched-out ulcer on the sole of the foot. What is the most appropriate management for this condition?

A. Ask him to bear less weight on that leg

B. Restart MDT

C. Amputation

D. Intense debridement and intravenous antibiotics

Correct answer: A

The patient is presenting with a trophic ulcer, a common long-term complication of leprosy. Leprosy often causes permanent nerve damage, leading to a loss of protective sensation (anesthesia) in the hands and feet. The painless, punched-out ulcer on the sole of the foot develops due to repetitive, unnoticed trauma and pressure on an anesthetic area. The patient has already completed multi-drug therapy (MDT), so this is not an active infection that requires restarting MDT (Option B). The primary principle of management for a trophic ulcer is pressure relief or off-loading (Option A). This is the most crucial step to allow the ulcer to heal and to prevent recurrence. This can be achieved through special footwear, casts, or crutches. While debridement and management of secondary infection with antibiotics (Option D) are also important parts of wound care, off-loading is the fundamental and most appropriate

Question 211. What is the primary function of Positive End-Expiratory Pressure (PEEP) in mechanical ventilation?

A. To prevent atelectasis

B. To decrease preload

C. To increase venous return

D. To increase respiratory rate (RR)

Correct answer: A

Positive End-Expiratory Pressure (PEEP) is a setting in mechanical ventilation where pressure in the lungs is maintained above atmospheric pressure at the end of expiration. The primary purpose of PEEP is to prevent alveolar collapse (atelectasis). By keeping the alveoli open throughout the respiratory cycle, PEEP increases the functional residual capacity (FRC), improves ventilation-perfusion (V/Q) matching by recruiting collapsed lung units, and increases the surface area for gas exchange. This

Question 212. A patient develops rigidity, tremors, and trismus following the administration of an anesthetic agent. Which anesthetic agent is most likely responsible?

A. Halothane

B. Nitrous Oxide (N O2)

C. Thiopentone sodium

D. Etomidate

Correct answer: D

The symptoms of muscle rigidity, tremors, and trismus (lockjaw) after administration of an intravenous anesthetic are characteristic of myoclonus, which is a known side effect of etomidate. Etomidate is an IV anesthetic agent valued for its hemodynamic stability (minimal effect on blood pressure and heart rate), making it useful for induction in critically ill or trauma patients. However, its use is associated with a high incidence of excitatory phenomena, including involuntary muscle movements (myoclonus) and pain on injection. The myoclonus is thought to be caused by disinhibition of subcortical neuronal activity. These movements can be minimized by pre-treatment with opioids or benzodiazepines. Thiopentone (C) is a barbiturate, and halothane (A) is an inhaled agent; neither is typically associated with myoclonus. Nitrous oxide (B) can cause shivering but not rigidity and trismus.

Question 213. A 0-year-old patient presents with complaints of headache, and a CT scan of the head is shown below. Based on the imaging findings, what is the most accurate diagnosis?

A. Subarachnoid hemorrhage (SAH) - aneurysm

B. Epidural hemorrhage

C. Subdural hemorrhage

D. Intraparenchymal hemorrhage

Correct answer: A

The non-contrast CT scan shows hyperdense material (which represents acute blood) filling the subarachnoid spaces. Specifically, blood can be seen in the basal cisterns, the Sylvian fissures, and the interhemispheric fissure, outlining the sulci and gyri. This pattern is pathognomonic for a subarachnoid hemorrhage (SAH). The most common cause of a non-traumatic SAH (in about 85% of cases) is the rupture of a saccular or berry aneurysm, typically located at the branch points of the arteries of the circle of Willis. The patient's complaint of headache is the classic symptom (worst headache of my life). An epidural hemorrhage (Option B) is typically lens-shaped (biconvex), while a subdural hemorrhage (Option C) is crescent-shaped. An intraparenchymal hemorrhage (Option D) would be located within the brain tissue itself.

Question 214. Based on the radiograph showing a foreign body lodged in the esophagus, which characteristic radiological sign is associated with this finding?

A. String sign

B. Double ring sign

C. Steeple sign

D. Thumb sign

Correct answer: B

The radiograph shows a coin lodged in the esophagus. When a button battery is ingested and lodged in the esophagus, it presents a significant medical emergency due to the risk of liquefaction necrosis and perforation. On an anteroposterior (AP) X-ray, a button battery has a characteristic appearance that distinguishes it from a simple coin : the double-ring or halo sign. This is because the battery has two components a smaller inner circle and a larger outer casing creating a two-layered appearance. While the image provided may be a simple coin, this sign is the one most famously associated with a dangerous esophageal foreign body of this shape. The steeple sign (C) and thumb sign (D) are seen in croup and epiglottitis, respectively. The string sign (A) is seen in barium studies of Crohn's disease.

Question 215. An 8-year-old boy presents with fever, localized tenderness, and warmth over a bone. Laboratory investigations reveal raised inflammatory markers, including an elevated ESR and CRP. A radiograph of the affected area is shown below. Based on the clinical presentation, laboratory findings, and radiographic appearance, what is the most likely diagnosis?

A. Ewing's sarcoma

B. Osteosarcoma

C. Osteomyelitis

D. Giant cell tumor

Correct answer: A

The patient's age and presentation with a bone lesion can suggest either infection (osteomyelitis) or a primary bone tumor. The radiograph showing a poorly defined, lytic lesion in the diaphysis or metaphysis of a long bone, along with an aggressive periosteal reaction like a lamellated onion-skin appearance or a Codman's triangle, is highly characteristic of Ewing's sarcoma. Ewing's sarcoma is a small, round, blue cell tumor that commonly affects children and young adults. It classically presents with pain, swelling, and systemic symptoms like fever and elevated inflammatory markers (ESR, CRP), mimicking an infection like osteomyelitis (Option C). Osteosarcoma (Option B) typically shows a sunburst pattern of bone formation and is usually metaphyseal. Giant cell tumor (Option D) is an epiphyseal lesion in skeletally mature individuals.

Question 216. A 5-year-old patient presents with acute epigastric pain and has elevated serum lipase levels. After stabilization over three days, a chest X-ray is obtained. What is the most common underlying pathology responsible for this

clinical presentation?

A. ARDS

B. Acute pulmonary edema

C. Pulmonary thromboembolism

D. Miliary TB

Correct answer: A

The initial presentation with acute epigastric pain and elevated lipase is diagnostic of acute pancreatitis. Acute pancreatitis is a major risk factor for developing Acute Respiratory Distress Syndrome (ARDS). This is a severe form of non-cardiogenic pulmonary edema and acute lung injury. The systemic inflammatory response triggered by severe pancreatitis can lead to the release of inflammatory cytokines and digestive enzymes into the circulation. These mediators damage the alveolar-capillary membrane in the lungs, causing increased permeability and leakage of protein-rich fluid into the alveolar spaces. The chest X-ray in ARDS typically shows bilateral, diffuse, fluffy alveolar infiltrates, as likely depicted in the associated image. The resulting severe hypoxemia is often refractory to standard oxygen therapy.

Question 217. A 0-year-old man presents with headaches, fever, and new-onset seizures. Brain MRI shows a ring-enhancing lesion with central restricted diffusion on DWI. What is the most likely diagnosis?

A. Glioblastoma multiforme

B. Metastatic brain tumor

C. Brain abscess

D. Toxoplasmosis

Correct answer: C

The clinical triad of headache, fever, and focal neurological deficits (like seizures) is highly suggestive of a central nervous system infection. On MRI, while several pathologies can cause a ring-enhancing lesion (tumors, infections), the finding of central restricted diffusion on Diffusion-Weighted Imaging (DWI) is a key diagnostic clue. This feature, which appears bright on DWI maps and dark on ADC maps, is highly specific for a pyogenic brain abscess. The restricted diffusion is caused by the high viscosity and cellularity of the purulent

Question 218. A 5-year-old woman presents to the outpatient department complaining of persistent feelings of tension along with gastrointestinal symptoms such as stomach discomfort, heartburn, and diarrhea. She reports that these complaints have been present for many years. She also mentions that several members of her family tend to feel tense and nervous as well.Based on this clinical history, which of the following additional symptoms is most likely to be observed in this patient?

A. Ideas of reference

B. Tingling of extremities

C. Hallucination

D. Neologism

Correct answer: B

The patient's long-standing history of feeling tense, coupled with prominent somatic symptoms (stomach upset, heartburn, diarrhea), is highly suggestive of an anxiety disorder, most likely Generalized Anxiety Disorder (GAD). GAD is characterized by excessive, uncontrollable worry about multiple aspects of life, accompanied by physical symptoms of autonomic arousal and muscle tension. These physical symptoms can include restlessness, fatigue, muscle aches, and gastrointestinal distress. Tingling of the extremities (paresthesias) is a very common somatic symptom of anxiety, often related to hyperventilation which can occur during periods of high anxiety. The other options are symptoms of psychosis and are not characteristic of anxiety disorders. Ideas of reference (A), hallucinations (C), and neologisms (D) are seen in conditions like schizophrenia.

Question 219. Which medication is commonly used for maintenance therapy in the management of opioid dependence?

A. Naltrexone

B. Clonidine

C. Buprenorphine

D. Disulfiram

Correct answer: C

Opioid maintenance therapy (OMT) is a long-term strategy for managing opioid use disorder. It involves substituting the illicit opioid with a long-acting, medically prescribed opioid to stabilize the patient, reduce cravings and withdrawal, and block the effects of other opioids. The two primary medications for OMT are methadone (a full agonist) and buprenorphine (a partial agonist). Buprenorphine's partial agonism provides sufficient mu-receptor stimulation to prevent withdrawal but has a ceiling effect on respiratory depression, making it safer than full agonists. Naltrexone (Option A) is an opioid antagonist used for relapse prevention in motivated patients after detoxification. Clonidine (Option B) is a non-opioid used to manage the autonomic symptoms of acute

Question 220. A 0-year-old man reports that he becomes sexually aroused and is able to have intercourse with a female partner only when he dresses in female lingerie and high heels. He clearly denies any sexual attraction toward males. What is the most likely diagnosis?

A. Gender dysphoria

B. Transvestic fetishism

C. Homosexuality

D. Testicular feminization

Correct answer: B

This scenario describes transvestic disorder (previously transvestic fetishism). The key diagnostic feature is recurrent and intense sexual arousal from cross-dressing (wearing the clothing of the opposite sex). The arousal is the central element. It is important to distinguish this from gender dysphoria (Option A), which involves a profound sense of incongruence between one's experienced gender and assigned gender. The individual in the scenario identifies as male and is attracted to females; his cross-dressing is for sexual arousal, not as an expression of a female gender identity. Homosexuality (Option C) refers to sexual attraction to individuals of the same sex, which the patient denies. Testicular feminization (Androgen Insensitivity Syndrome, Option D) is a disorder of sex development and is not a psychiatric diagnosis.

Question 221. A person with a long history of chronic alcohol consumption, who had an episode of binge drinking about 0 days ago, is brought to the emergency department in an unconscious state. A non-contrast CT scan of the brain is normal, and laboratory evaluation reveals a blood glucose level of 5 mg/dL.What is the most appropriate treatment for this patient?

A. Normal saline

B. IM thiamine followed by dextrose

C. 5% dextrose/vitamin K

D. 25% dextrose

Correct answer: B

The patient presents with altered consciousness and severe hypoglycemia (glucose 45 mg/dL) in the context of chronic alcoholism. This is a medical emergency. The critical management principle in this situation is to correct the hypoglycemia without precipitating Wernicke's encephalopathy. Chronic alcoholics are frequently deficient in thiamine (vitamin B1), a vital coenzyme for glucose metabolism. If a large load of glucose (dextrose) is given before thiamine, it can deplete the remaining thiamine stores and cause acute, irreversible brain damage. Therefore, the standard and mandatory protocol is to administer thiamine first (intramuscularly or intravenously) to ensure the metabolic pathways are functional, followed immediately by intravenous dextrose to correct the life-threatening hypoglycemia. Administering only dextrose (Option D) is dangerous. Normal saline (Option A) will not correct the hypoglycemia.

Question 222. A patient who was taking the SSRI sertraline was additionally prescribed amitriptyline and subsequently developed features of serotonin toxicity. What is the most appropriate treatment for managing serotonin toxicity in this patient?

A. Flumazenil

B. Cyproheptadine

C. L-Carnitine

D. Leucovorin

Correct answer: B

Serotonin syndrome (or toxicity) is a potentially fatal condition resulting from excess serotonergic activity in the CNS. The combination of an SSRI (sertraline) and a tricyclic antidepressant (amitriptyline) increases this risk. The syndrome presents with a triad of altered mental status, autonomic dysfunction, and neuromuscular hyperactivity. Management involves discontinuing the offending agents and providing supportive care. For moderate to severe cases, the specific antidote is cyproheptadine. Cyproheptadine is an antihistamine with potent serotonin antagonist properties, particularly at the 5-HT2A receptor, which is believed to play a key role in the pathophysiology of the syndrome. By blocking these receptors, it helps to reverse

Question 223. A 4-year-old man presents for psychiatric evaluation. During the interview, he appears calm, pleasant, and charming. However, his history reveals frequent fights with friends, truancy, repeated violation of traffic rules, and involvement in multiple police cases.Based on this pattern of behavior, what is the most likely diagnosis?

A. Narcissistic personality disorder

B. Paranoid personality disorder

C. Schizotypal personality disorder

D. Antisocial personality disorder

Correct answer: D

The patient's presentation is a classic example of Antisocial Personality Disorder (ASPD). The core feature of ASPD is a pervasive pattern of disregard for and violation of the rights of others. This manifests as a failure to conform to social norms and lawful behaviors (breaking rules, police cases), irritability and aggressiveness (getting into fights), and a consistent irresponsibility (skipping classes). A key associated feature is a lack of remorse for their actions. Individuals with ASPD can often present with a superficial charm (being calm and charming) and can be manipulative, which they use to exploit others. The diagnosis requires a history of conduct disorder before the age of 15 and the individual must be at least 18 years old. The pattern of behavior described clearly fits the criteria for ASPD.

Question 224. A 0-year-old woman has consulted multiple plastic surgeons seeking correction of what she believes is a facial deformity. Despite normal findings on clinical examination, she persistently checks her face and remains convinced that it is abnormal and requires surgical correction. She continues to insist on surgery

despite repeated reassurance from family members and doctors, and has therefore been referred for psychiatric evaluation. What is the most appropriate management for this patient?

A. Behavior therapy

B. SSRI

C. Atypical antipsychotics

D. Allow her to have surgery

Correct answer: B

This patient's presentation is characteristic of Body Dysmorphic Disorder (BDD). BDD is a psychiatric disorder characterized by a preoccupation with a perceived defect in one's physical appearance that is either non-existent or only slight to others. This preoccupation causes significant distress and is accompanied by repetitive, compulsive behaviors such as mirror checking or seeking reassurance. BDD is considered to be on the obsessive-compulsive spectrum, and the first-line and most effective pharmacological treatment is a Selective Serotonin Reuptake Inhibitor (SSRI), often at higher doses than those used for depression. Cognitive-behavioral therapy (CBT) (Option A) is also a very effective treatment, often used in conjunction with an SSRI. Atypical antipsychotics (Option C) may be used as an adjunct in severe or delusional cases. Allowing surgery (Option D) is contraindicated as it does not address the underlying psychiatric condition and patients are rarely satisfied with the outcome.

Question 225. If attention-deficit/hyperactivity disorder (ADHD) remains untreated from childhood, the risk of developing which condition increases during adolescence?

A. Selective mutism

B. Conduct disorder

C. Binge eating disorder

D. Separation anxiety disorder

Correct answer: B

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that often co-occurs with other psychiatric conditions. When ADHD persists into adolescence and is untreated, the core symptoms of impulsivity, poor judgment, and difficulty with emotional regulation can contribute to the development

Question 226. A young girl presents with recurrent episodes of loss of consciousness lasting approximately 0 minutes. These episodes occur only during the daytime and exclusively in the presence of family members. There is no history of tongue biting, urinary or fecal incontinence, and both EEG and MRI findings are normal.What is the most appropriate management for this patient?

A. Treat with aversive therapy

B. Insight-oriented psychotherapy

C. Valproate

D. Ketogenic diet

Correct answer: B

The features of these episodes are highly suggestive of a functional or psychogenic cause rather than an epileptic seizure. Key indicators include the prolonged duration (20 minutes is very long for a seizure), the situational nature (only in front of family), the lack of typical seizure signs (tongue biting, incontinence), and the normal EEG and MRI findings. This presentation is consistent with a conversion disorder (functional neurological symptom disorder) or a dissociative state, where psychological stress or conflict manifests as a physical symptom. The management for such conditions is primarily psychological. Insight-oriented psychotherapy aims to help the patient understand the underlying emotional conflicts or stressors that are contributing to the physical symptoms. Antiepileptic drugs like valproate (Option C) or a ketogenic diet (Option D) are for epilepsy and would be inappropriate. Aversive therapy (A) is not indicated.

Question 227. A mother reports that her daughter has ingested an unknown substance in an uncertain quantity. The child presents with hypertension, tachycardia, dilated pupils (mydriasis), and hyperthermia. Which substance is most likely responsible for these clinical features?

A. Heroin

B. Morphine

C. Cocaine

D. Chlorpheniramine

Correct answer: C

The patient's signs and symptoms—hypertension, tachycardia (rapid heart rate), mydriasis (dilated pupils), and hyperthermia (elevated body temperature)—constitute a classic sympathomimetic toxidrome. This is caused by substances that stimulate the sympathetic nervous system. Cocaine is a potent sympathomimetic that blocks the reuptake of norepinephrine, dopamine, and serotonin, leading to excessive stimulation of adrenergic receptors. This results in the cardiovascular stimulation (tachycardia, hypertension), pupillary dilation, and increased metabolic rate (hyperthermia) seen in the patient. Heroin (Option A) and morphine (Option B) are opioids and would cause the opposite effects : CNS depression, bradycardia, hypotension, and miosis (constricted pupils). Chlorpheniramine (Option D) is an antihistamine that in overdose would cause an anticholinergic toxidrome (tachycardia, mydriasis, but with dry skin, not typically diaphoresis).