NEET PG 2019 Question Paper

229 recall questions with answers and explanations.

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

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Question 1. Thrombosis of the posterior inferior cerebellar artery (PICA) is associated with which syndrome?

A. Wallenberg syndrome

B. Medial medullary syndrome

C. Inferior alternating syndrome

D. Dejerine syndrome

Correct answer: A

Wallenberg syndrome, also known as the lateral medullary syndrome, is a neurological condition caused by an ischemic stroke in the lateral part of the medulla oblongata in the brainstem. The most common vascular cause for this infarct is an occlusion of the intracranial portion of the vertebral artery, followed by its largest branch, the posterior inferior cerebellar artery (PICA). This stroke leads to a characteristic pattern of neurological deficits due to damage to specific tracts and nuclei. Key features include vertigo, nystagmus, and ataxia (damage to the inferior cerebellar peduncle and vestibular nuclei); dysphagia and hoarseness (damage to the nucleus ambiguus); and a distinctive crossed sensory loss. The patient experiences loss of pain and temperature sensation on the ipsilateral (same) side of the face (spinal trigeminal nucleus) and the contralateral (opposite) side of the body (spinothalamic tract).

Question 2. In which organ is the Space of Disse located?

A. Spleen

B. Lymph node

C. Liver

D. Bone

Correct answer: C

The Space of Disse, or the perisinusoidal space, is a unique anatomical location found within the liver. It is the microscopic space situated between the basolateral surface of the hepatocytes (liver cells) and the fenestrated endothelial lining of the liver sinusoids (specialized capillaries). This space is filled with blood plasma that filters through the fenestrations of the sinusoidal endothelium. The Space of Disse is a critical site for the metabolic exchange between the blood

and the hepatocytes; plasma solutes can directly contact the microvilli of the hepatocytes, allowing for efficient uptake of nutrients and secretion of proteins like albumin. It also contains the hepatic stellate cells (also known as Ito cells), which are responsible for storing Vitamin A and are involved in the pathogenesis of liver fibrosis. This perisinusoidal space is a feature unique to the liver's microarchitecture.

Question 3. What are Gitter cells?

A. Macroglia

B. Modified macrophages in CNS

C. Astrocytes

D. Oligodendrocytes

Correct answer: B

Gitter cells are a specific type of cell found in the central nervous system (CNS) at sites of injury, necrosis, or inflammation. They are essentially modified, activated macrophages that are filled with phagocytosed lipid debris. Their origin is twofold : they are derived from the brain's resident immune cells, the microglia, as well as from blood-borne monocytes that migrate into the CNS in response to the injury. When a CNS injury occurs (e.g., an ischemic stroke or trauma), these cells become activated and adopt a phagocytic role. They engulf the lipid-rich debris from degenerating myelin sheaths and necrotic neurons. The accumulation of this lipid material within their cytoplasm gives them a characteristic enlarged, foamy, or

Question 4. The cholecystocaval line separates which anatomical structures?

A. Right & Left liver lobe

B. Liver with Gall Bladder

C. Right lobe of liver with Gall Bladder

D. Left lobe of liver with Gall Bladder

Correct answer: C

The cholecystocaval line, also known as Cantlie’s line, is an imaginary anatomical line used to divide the liver into functional right and left lobes. It extends from the gallbladder fossa on the inferior surface of the liver anteriorly to the inferior vena cava posteriorly. This line represents the plane along which the middle hepatic vein runs, and it separates the liver based on its vascular supply and biliary drainage rather than on external anatomical appearance.Although the liver appears to be divided into right and left lobes by the falciform ligament, this division is only superficial. The true functional division is represented by the cholecystocaval line. Structures located to the right of this line belong to the functional right lobe, while those to the left belong to the functional left lobe.The gallbladder lies to the right side of Cantlie’s line, in the gallbladder fossa on the visceral surface of the liver. Therefore, the cholecystocaval line effectively separates the right lobe of the liver from the region containing the gallbladder, making option (C) Right lobe of liver with Gall Bladder the correct answer.

Question 5. Which exocrine gland ducts are not obstructed in cystic fibrosis?

A. Pancreas

B. Lung

C. Sweat gland

D. All of the above

Correct answer: C

Cystic fibrosis (CF) is a genetic disorder caused by a defective CFTR protein, which functions as a chloride channel. In most exocrine glands, such as those in the lungs and pancreas, the defective

Question 6. In Tetralogy of Fallot (TOF), the characteristic boot-shaped heart appearance is due to which factor?

A. Left atrial enlargement

B. Right atrial enlargement

C. Right ventricular hypertrophy

D. Biventricular hypertrophy

Correct answer: C

The boot-shaped heart, or cœur en sabot, is the classic radiographic sign seen on a chest X-ray

Question 7. Damage to which structure results in contralateral loss of pain and temperature sensation?

A. Anterior spinothalamic tract

B. Lateral spinothalamic tract

C. Fasciculus gracilis

D. Fasciculus cuneatus

Correct answer: B

The sensations of pain and temperature are transmitted from the periphery to the brain via the spinothalamic tract, which is a key component of the anterolateral system. The first-order neurons have their cell bodies in the dorsal root ganglion and enter the spinal cord. They synapse in the dorsal horn with second-order neurons. The axons of these second-order neurons immediately decussate (cross over) to the opposite side of the spinal cord within one or two spinal segments. They then ascend in the contralateral white matter as the lateral spinothalamic tract. Because these fibers cross at the level of the spinal cord, an injury to the lateral spinothalamic tract on one side will result in a loss of pain and temperature sensation on the contralateral (opposite) side of the body, beginning a few segments below the level of the lesion. The fasciculus gracilis and cuneatus (dorsal columns) carry ipsilateral proprioception and fine touch.

Question 8. Which of the following structures is not derived from the external

oblique muscle?

A. Inguinal ligament

B. Lacunar ligament

C. Cooper ligament

D. Linea semilunaris

Correct answer: C

The aponeurosis of the external oblique muscle forms several important structures in the inguinal region. The thickened, inferior free

Question 9. The ducts of Bellini are found in which organ?

A. Pancreas

B. Liver

C. Kidney

D. Salivary gland

Correct answer: C

The ducts of Bellini, also known as the papillary ducts, are anatomical structures found within the kidney. They represent the most distal part of the collecting duct system. The collecting ducts from multiple nephrons progressively merge in the renal medulla to form larger and larger ducts. The final, large-caliber ducts that are formed just before the collecting system opens into the minor calyx at the tip of the renal papilla are called the ducts of Bellini. These ducts are lined by tall columnar epithelium and are responsible for channeling the final, concentrated urine from the renal medulla into the renal pelvis. They are the terminal conduits of the nephron and play a final role in concentrating the urine under the influence of antidiuretic hormone (ADH).

Question 10. Which structure develops from the first pharyngeal arch?

A. Levator palatini

B. Buccinator

C. Stylohyoid

D. Masseter

Correct answer: A

No explanation is available for this recall question yet.

Question 11. Which joint is responsible for allowing the head to move from side to side (left to right)?

A. Atlanto-axial joint

B. Atlanto-occipital joint

C. C2-C3 joint

D. C3-C4 joint

Correct answer: A

The rotational movement of the head, such as shaking the head no from left to right, occurs primarily at the atlanto-axial joint. This is a complex of three synovial joints between the first cervical vertebra (the atlas, C1) and the second cervical vertebra (the axis, C2). The main component responsible for rotation is the pivot joint between the dens (odontoid process) of the axis and the anterior arch of the atlas. This arrangement allows the atlas, which carries the skull, to pivot or rotate around the dens of the axis. Approximately 50% of all cervical spine rotation occurs at this specific joint. In contrast, the atlanto-occipital joint (B), between the atlas and the occipital condyles of the skull, is primarily responsible for flexion and extension of the head (the yes motion).

Question 12. Which nerve supplies the submandibular gland?

A. Auriculotemporal nerve

B. Lingual nerve

C. Glossopharyngeal nerve

D. Mandibular nerve

Correct answer: B

The secretomotor innervation of the submandibular and sublingual salivary glands follows a complex parasympathetic pathway. The preganglionic parasympathetic fibers originate from the superior salivatory nucleus in the brainstem and travel with the facial nerve (CN VII). These fibers then branch off as the chorda tympani nerve, which joins the lingual nerve (a branch of the mandibular nerve, CN V3) in the infratemporal fossa. The preganglionic fibers travel along the lingual nerve until they synapse in the submandibular ganglion, which is suspended from the lingual nerve itself. Postganglionic fibers then arise from this ganglion and directly supply the submandibular and sublingual glands, stimulating saliva secretion. Therefore, while the original fibers are from the facial nerve, the lingual nerve is the final carrier of these secretomotor fibers to the gland and its ganglion.

Question 13. During autotransplantation, the parathyroid gland is usually implanted into which muscle?

A. Sartorius

B. Supinator

C. Deltoid

D. Brachioradialis

Correct answer: D

During a total thyroidectomy or parathyroidectomy, the parathyroid glands are at risk of being inadvertently removed or devascularized, which would lead to permanent hypoparathyroidism. To prevent this, if the glands cannot be preserved in situ, they are removed, minced into small pieces, and immediately autotransplanted into a well-vascularized muscle bed. The most

common and preferred site for this implantation is the brachioradialis muscle in the non-dominant forearm. This location is chosen because it is easily accessible under local anesthesia and is distant from the primary surgical field in the neck. Implanting the tissue into a muscle provides an excellent blood supply for the graft

Question 14. The right coronary artery originates from which structure?

A. Right Aortic Sinus

B. Left Aortic Sinus

C. Posterior Coronary Sinus

D. Anterior Coronary Sinus

Correct answer: A

The coronary arteries, which supply blood to the heart muscle itself, are the first branches of the aorta. They originate from the aortic sinuses (also known as the sinuses of Valsalva), which are three small dilations at the root of the ascending aorta, located just superior to the cusps of the aortic valve. There are three aortic sinuses : the right, the left, and the posterior (non-coronary) sinus. The right coronary artery (RCA) arises from the right aortic sinus (also called the anterior aortic sinus). The left coronary artery (LCA) arises from the left aortic sinus (also called the left posterior aortic sinus). The posterior aortic sinus is typically non-coronary, meaning no coronary artery arises from it.

Question 15. Bainbridge reflex causes which of the following?

A. Bradycardia

B. Increased cardiac output

C. Decreased venous return

D. Increased heart rate

Correct answer: D

The Bainbridge reflex, also known as the atrial reflex, is a physiological mechanism that results in an increase in heart rate in response to an increase in venous return and right atrial pressure. When venous return to the heart increases, the walls of the right atrium are stretched. This stretching stimulates low-pressure baroreceptors (stretch receptors) located in the atrial walls. The afferent signals from these receptors travel via the vagus nerve to the cardiovascular center in the medulla oblongata. The medullary centers then respond by decreasing parasympathetic (vagal) tone and increasing sympathetic tone to the sinoatrial (SA) node. This results in a reflexive tachycardia, or an increased heart rate. This reflex helps to prevent the pooling of blood in the venous system by accelerating the heart's pumping action to match the increased venous return.

Question 16. The Golgi tendon organ is responsible for detecting which stimulus?

A. Tension

B. Length

C. Pressure

D. Proprioception

Correct answer: A

The Golgi tendon organ (GTO) is a proprioceptive sensory receptor located at the junction between a muscle and its tendon (the musculotendinous junction). The primary function of the GTO is to

Question 17. Which hormone is mainly released after day 14 of the menstrual cycle and influences the endometrium?

A. Progesterone

B. Estrogen

C. LH

D. FSH

Correct answer: A

The menstrual cycle is divided into the follicular and luteal phases. Ovulation, triggered by the Luteinizing Hormone (LH) surge, occurs around day 14. Following ovulation, the remnant of the ovarian follicle transforms into the corpus luteum. The corpus luteum is responsible for secreting large amounts of progesterone, which becomes the dominant hormone during the second half of the cycle (the luteal phase, from day 14 to 28). Progesterone's primary role is to act on the endometrium, which has already been thickened by estrogen during the follicular phase. Progesterone induces secretory changes in the endometrial glands, increases vascularization, and makes the endometrium receptive to implantation of a fertilized embryo. If pregnancy does not occur, the corpus luteum degenerates, progesterone levels fall, and menstruation begins.

Question 18. Peripheral chemoreceptors detect hypoxia through which type of ion channel?

A. Calcium channel

B. Sodium channel

C. Potassium channel

D. Chloride channel

Correct answer: A

No explanation is available for this recall question yet.

Question 19. Functional residual capacity (FRC) is the volume of air left in the lungs after which respiratory event?

A. After normal inspiration

B. After normal expiration

C. After forceful expiration

D. After forceful inspiration

Correct answer: B

Functional Residual Capacity (FRC) is a standard lung volume that represents the amount of air remaining in the lungs at the end of a normal, quiet expiration. It is the equilibrium point of the respiratory system, where the outward elastic recoil of the chest wall is exactly balanced by the inward elastic recoil of the lungs. The FRC is not a single volume but is the sum of two other lung volumes : the Expiratory Reserve Volume (ERV) and the Residual Volume (RV). FRC is a physiologically important volume because it acts as a buffer, ensuring that gas exchange in the alveoli can continue at a relatively constant rate throughout the respiratory cycle, even during expiration. The volume of air remaining after a forceful expiration (C) is the Residual Volume.

Question 20. Polyuria is defined as a urine output exceeding which value?

A. 70 ml/kg/day

B. 60 ml/kg/day

C. 50 ml/kg/day

D. 40 ml/kg/day

Correct answer: C

Polyuria is a clinical term for the passage of an abnormally large volume of urine over a 24-hour period. While various absolute volume definitions exist (e.g., >3 liters per day for an adult), a more precise, weight-based definition is often used, particularly in pediatrics and for comparing individuals of different sizes. Polyuria is generally defined as a urine output of more than 40 to 50 milliliters per kilogram of body weight per 24 hours. For a typical 70 kg adult, this corresponds to a urine volume of 2.8 to 3.5 liters per day. This excessive urine output is a hallmark symptom of conditions like diabetes mellitus (due to osmotic diuresis) and diabetes insipidus (due to a lack of or insensitivity to antidiuretic hormone). Among the options provided, >50 ml/kg is a commonly cited threshold.

Question 21. Tubuloglomerular feedback helps regulate which physiological process?

A. GFR (Glomerular Filtration Rate)

B. Plasma sodium

C. Plasma volume

D. Determining tubular secretion

Correct answer: A

Tubuloglomerular feedback (TGF) is a crucial intrarenal mechanism that contributes to the autoregulation of renal blood flow and glomerular filtration rate (GFR). This feedback loop links the GFR to the composition of the tubular fluid at the end of the loop of Henle. The specialized cells of the macula densa, located in the distal tubule, sense the flow rate and the concentration of sodium chloride in the tubular fluid. If the GFR increases, more fluid and salt

are delivered to the macula densa. In response, the macula densa cells release signaling molecules (like ATP and adenosine) that cause vasoconstriction of the afferent

Question 22. Calcitonin levels are elevated in which of the following conditions?

A. Hyperthyroidism

B. Hypoparathyroidism

C. Hyperparathyroidism

D. Cushing Syndrome

Correct answer: C

Note : This question is physiologically complex and potentially misleading. The best answer among the choices requires careful consideration.Calcitonin is a hormone secreted by the parafollicular C-cells of the thyroid gland. Its primary physiological stimulus for secretion is hypercalcemia (high serum calcium). Calcitonin acts to lower serum calcium levels, primarily by inhibiting osteoclast-mediated bone resorption. Hyperparathyroidism is a condition characterized by excessive secretion of parathyroid hormone (PTH), which leads to hypercalcemia. This resultant hypercalcemia would, in turn, serve as a stimulus for the C-cells to release calcitonin as a counter-regulatory response. Therefore, elevated calcitonin levels can be a secondary finding in hyperparathyroidism. The most significant clinical cause of markedly elevated calcitonin is medullary thyroid carcinoma, a tumor of the C-cells, but that is not an option. Among the choices provided, the hypercalcemia of hyperparathyroidism is the most direct cause of increased calcitonin.

Question 23. If FEV_1 is 1.3 L and FVC is 3.9 L, what does this indicate?

A. Normal lung function

B. Obstructive lung disease

C. Restrictive lung disease

D. Both B & C

Correct answer: B

No explanation is available for this recall question yet.

Question 24. Which factor primarily mediates antegrade peristalsis?

A. Acetylcholine (ACh)

B. Serotonin

C. Substance P

D. Vasoactive Intestinal Peptide (VIP)

Correct answer: A

Peristalsis is the coordinated, wave-like muscular contraction that propels food (bolus) in an antegrade (forward) direction through the gastrointestinal tract. This process is controlled by the enteric nervous system. The peristaltic reflex involves coordinated contraction and

relaxation. The contraction of the circular muscle behind (oral to) the bolus is mediated by excitatory motor neurons. The primary excitatory neurotransmitter released by these neurons to cause muscle contraction is acetylcholine (ACh), which acts on muscarinic receptors on the smooth muscle cells. Substance P also plays a co-excitatory role. Simultaneously, the circular muscle ahead of (aboral to) the bolus must relax to allow the bolus to move forward. This relaxation is mediated by inhibitory motor neurons, which primarily release nitric oxide (NO) and Vasoactive Intestinal Peptide (VIP). Therefore, while multiple neurotransmitters

Question 25. C-peptide is present in which of the following situations?

A. In Pre-proinsulin

B. In Proinsulin

C. As a combined entity with insulin after secretion

D. A gastrointestinal proactive molecule

Correct answer: B

Insulin is synthesized in the beta cells of the pancreas as a single polypeptide chain called proinsulin. The proinsulin molecule consists of the A chain and B chain of insulin, which are linked together by a connecting peptide, known as the C-peptide. For insulin to become active, this proinsulin molecule must be cleaved. Within the secretory granules of the beta cell, enzymes cleave off the C-peptide, leaving the A and B chains linked by disulfide bonds to form the mature insulin molecule. When the beta cell is stimulated to release insulin into the bloodstream, it co-secretes both mature insulin and the C-peptide in equimolar amounts (one molecule of C-peptide for every one molecule of insulin). Because C-peptide is co-secreted but is not cleared by the liver like insulin, its measurement in the blood is a valuable clinical tool for assessing endogenous insulin production.

Question 26. Which neurons are activated during forceful expiration?

A. VRG (Ventral Respiratory Group)

B. DRG (Dorsal Respiratory Group)

C. Pneumotaxic center

D. Chemoreceptors

Correct answer: A

The control of breathing is managed by respiratory centers in the brainstem. The Dorsal Respiratory Group (DRG), located in the medulla, contains primarily inspiratory neurons. It is responsible for initiating and driving the basic rhythm of quiet inspiration by stimulating the diaphragm and external intercostal muscles. Quiet expiration is a passive process resulting from the elastic recoil of the

Question 27. Which type of nerve fibers exhibit slow conduction velocity?

A. Preganglionic autonomic nerve fibers

B. Postganglionic autonomic nerve fibers

C. Motor nerves

D. Sympathetic nerve fibers

Correct answer: B

The conduction velocity of a nerve fiber is primarily determined by its diameter and the presence or absence of a myelin sheath. Large, myelinated fibers conduct the fastest, while small, unmyelinated fibers conduct the slowest.Motor nerves (C) to skeletal muscle are large, heavily myelinated A-alpha fibers and are the fastest conducting.Preganglionic autonomic fibers (A) are small, lightly myelinated B-fibers, which conduct at an intermediate speed.Postganglionic autonomic nerve fibers (B) are very small diameter and are unmyelinated. These are classified as C-fibers.Because they lack myelin and have a small diameter, C-fibers have the slowest conduction velocity of all nerve fiber types. These fibers are responsible for transmitting signals from the autonomic ganglia to the target effector organs. The option Sympathetic nerve fibers (D) is too general, as it includes both preganglionic (faster B-fibers) and postganglionic (slower C-fibers).

Question 28. Which cells are responsible for secreting testosterone?

A. Leydig's cells

B. Somatotropic cells

C. Acidophilic cells MEDINK CHAPTER 02_PHYSIOLOGY

D. Gonadotropic cells

Correct answer: A

Testosterone, the primary male sex hormone, is produced and secreted by the Leydig cells (also known as interstitial cells of Leydig). These endocrine cells are located in the interstitial tissue of the testes, in the spaces between the seminiferous tubules. The synthesis and secretion of testosterone by the Leydig cells are under the control of Luteinizing Hormone (LH), which is secreted by the gonadotropic cells of the anterior pituitary gland. LH binds to receptors on the Leydig cells, stimulating the enzymatic pathway that converts cholesterol into testosterone. Testosterone is essential for spermatogenesis within the seminiferous tubules (a paracrine function) and is also secreted into the bloodstream to exert its systemic androgenic and anabolic effects, which are responsible for the development of male secondary sexual characteristics. Somatotropic (B) and gonadotropic (D) cells are located in the pituitary gland.

Question 29. Vasopressin exerts its effect in the collecting duct by acting on which channels?

A. Aquaporin 1

B. GLUT 4

C. Aquaporin 2

D. None of the Abov

Correct answer: C

Vasopressin, also known as antidiuretic hormone (ADH), is the primary hormone that regulates water reabsorption in the kidneys. It exerts its effect on the principal cells of the late distal tubule and the collecting duct. Vasopressin binds to the V2 receptor on the basolateral membrane of these cells, which initiates a Gs-protein coupled signaling cascade that increases intracellular cyclic AMP. This signaling pathway stimulates the insertion of pre-formed water channels into the apical (luminal) membrane of the cell. These specific vasopressin-regulated water channels are called Aquaporin-2 (AQP2). The insertion of AQP2 channels makes the apical membrane highly permeable to water, allowing water to be reabsorbed from the

Question 30. Which of the following statements is true regarding decorticate rigidity?

A. Removal of cerebral cortex and basal ganglia

B. Flexion of lower limbs & extension of upper limbs

C. Rigidity is less pronounced than decerebrate rigidity

D. None of the above

Correct answer: C

Decorticate rigidity (or posturing) is a stereotypical posture that occurs with specific types of severe brain injury. It is caused by a lesion in the cerebral hemispheres that is superior to the red nucleus in the midbrain. This lesion disconnects the cerebral cortex from the brainstem. The posture is characterized by flexion of the upper limbs (arms flexed and adducted, wrists and fingers flexed) and extension of the lower limbs. This occurs because the rubrospinal tract, which originates from the red nucleus and facilitates upper limb flexion, is left intact and unopposed by cortical input. The vestibulospinal tract causes extension in all limbs, but its effect on the upper limbs is overridden by the rubrospinal tract. In decerebrate rigidity, the lesion is below the red nucleus, so both upper and lower limbs are extended. Decerebrate rigidity is generally considered a more severe injury, and the associated extensor rigidity is more pronounced than in decorticate posturing.

Question 31. Zewellger syndrome is due to the absence of :

A. Lysosome

B. Mitochondria

C. Peroxisome

D. Nucleus

Correct answer: C

Zellweger syndrome is the most severe of a group of genetic disorders known as peroxisome biogenesis disorders (PBDs). It is an autosomal recessive condition caused by mutations in PEX genes, which encode proteins (peroxins) that are essential for the normal formation and assembly of peroxisomes. Peroxisomes are vital cellular organelles that are responsible for

several key metabolic functions, including the beta-oxidation of very long-chain fatty acids (VLCFAs), the synthesis of plasmalogens (essential components of myelin), and the metabolism of branched-chain fatty acids. The absence or dysfunction of peroxisomes in Zellweger syndrome leads to the accumulation of toxic VLCFAs and other metabolites in various tissues, particularly the brain, liver, and kidneys. This results in a devastating multisystem disease characterized by severe neurological abnormalities, craniofacial dysmorphism, and liver dysfunction, which is typically fatal in the first year of life.

Question 32. Urea, creatinine, and nitric oxide are formed from which amino acid?

A. Histidine

B. Glycine

C. Cysteine

D. Arginine

Correct answer: D

No explanation is available for this recall question yet.

Question 33. Which of the following is not a source of cytosolic NADPH?

A. Isocitrate dehydrogenase

B. ATP citrate lyase

C. Malic enzyme

D. G6PD

Correct answer: B

NADPH is a crucial reducing equivalent used in various anabolic (biosynthetic) pathways in the cytosol, such as fatty acid synthesis and cholesterol synthesis, and for antioxidant defense. There are three main enzymes responsible for generating cytosolic NADPH :1. Glucose-6-phosphate dehydrogenase (G6PD) : This is the rate-limiting enzyme of the pentose phosphate pathway (HMP shunt), which is the primary source of cytosolic NADPH.2. Malic enzyme : This enzyme catalyzes the oxidative decarboxylation of malate to pyruvate, producing NADPH in the cytosol.3. Cytosolic Isocitrate Dehydrogenase : This enzyme catalyzes the oxidative decarboxylation of isocitrate to α-ketoglutarate, also producing NADPH.In contrast, ATP citrate lyase is a cytosolic enzyme that cleaves citrate (which has been transported from the mitochondria) into acetyl-CoA and oxaloacetate. This reaction requires ATP and produces acetyl-CoA for fatty acid synthesis, but it does not produce NADPH.

Question 34. All are true regarding mitochondrial DNA, EXCEPT :

A. Double-stranded

B. Inherited from mother

C. High mutation rate

D. All respiratory proteins are synthesized within mitochondria itself

Correct answer: D

The statement that all respiratory proteins are synthesized within the mitochondria is false. While mitochondria possess their own small, circular, double-stranded genome (mtDNA) and the machinery to transcribe and translate it, this genome is very limited. Human mtDNA encodes only 13 proteins, all of which are essential subunits of the electron transport chain complexes (I, III, IV) and ATP synthase. However, the vast majority of mitochondrial proteins, including the other ~70 subunits of the respiratory chain complexes and all the proteins involved in mtDNA replication, transcription, translation, and metabolism, are encoded by genes in the nuclear DNA. These proteins are synthesized on cytoplasmic ribosomes and then imported into the mitochondria. Therefore, the assembly and function of the respiratory chain require a coordinated effort between both the mitochondrial and nuclear genomes. The other statements are true : mtDNA is inherited almost exclusively from the mother, and it has a high mutation rate compared to nuclear DNA.

Question 35. Which apolipoprotein is associated with Alzheimer’s disease?

A. ApoE4

B. ApoE3

C. ApoE2

D. ApoE1

Correct answer: A

The gene for Apolipoprotein E (APOE) exists in three common alleles : ε2, ε3, and ε4, which code for the ApoE2, ApoE3, and ApoE4 protein isoforms, respectively. While ApoE's primary role is in lipid transport, it is also involved in neuronal repair and amyloid-beta peptide metabolism in the brain. The ApoE4 allele is

Question 36. Hyperammonaemia inhibits the TCA cycle by depleting :

A. Succinate

B. α-ketoglutarate

C. Malate

D. Fumarate

Correct answer: B

Hyperammonemia, an excess of ammonia in the blood, is highly toxic to the central nervous system and is the primary cause of hepatic encephalopathy. One of the main mechanisms of ammonia's neurotoxicity is its interference with the tricarboxylic acid (TCA) cycle in brain astrocytes. In the brain, excess ammonia is detoxified by being combined with glutamate to form glutamine, a reaction catalyzed by glutamine synthetase. To replenish the glutamate used in this reaction, another enzyme, glutamate dehydrogenase, combines ammonia with the TCA cycle intermediate α-ketoglutarate. In a state of severe hyperammonemia, this reaction is driven strongly in the direction of glutamate synthesis, which effectively depletes the brain's

pool of α-ketoglutarate. The loss of this critical TCA cycle intermediate impairs the cycle's function, leading to a deficit in cellular energy (ATP) production and contributing significantly to the neurological dysfunction seen in hepatic encephalopathy.

Question 37. Which Amino acid is used to synthesize Nitric oxide :

A. Glycine

B. Arginine

C. Tyrosine

D. Threonine

Correct answer: B

Nitric oxide (NO) is a vital gaseous signaling molecule with roles in vasodilation, neurotransmission, and immunity. It is synthesized endogenously from the amino acid L-arginine. This conversion is catalyzed by a family of enzymes known as nitric oxide synthases (NOS). The NOS enzyme utilizes the guanidinium group of L-arginine as the source for the nitrogen atom in nitric oxide. In the process, L-arginine is oxidized to produce nitric oxide and L-citrulline as a co-product. This enzymatic reaction requires several cofactors, including molecular oxygen, NADPH, and tetrahydrobiopterin. The availability of the substrate, L-arginine, can be a rate-limiting factor for NO production in certain physiological and pathological states. The other amino acids listed are precursors for different molecules; for example, tyrosine is the precursor for catecholamines.

Question 38. Menkes disease is caused by a deficiency of which enzyme?

A. Lysyl oxidase

B. Methionine synthase

C. Glutamyl aminopeptidase

D. Lysyl hydroxylase

Correct answer: A

Menkes disease is a rare, X-linked recessive disorder of copper metabolism. It is caused by a mutation in the ATP7A gene, which codes for a copper-transporting ATPase. This defect leads to impaired absorption of copper from the diet and a failure to transport copper out of cells and into the bloodstream. The resulting systemic copper deficiency leads to the dysfunction of numerous copper-dependent enzymes. One of the most critically affected enzymes is lysyl oxidase. This enzyme is essential for the final step in the synthesis of collagen and elastin; it catalyzes the cross-linking of collagen and elastin fibers, which gives connective tissues their strength and elasticity. The deficiency of lysyl oxidase in Menkes disease leads to defective connective

Question 39. LCAT deficiency increases the following.?

A. HDL

B. LDL

C. VLDL

D. Chylomicron

Correct answer: A

LCAT (lecithin–cholesterol acyltransferase) is responsible for esterifying free cholesterol in plasma, especially on HDL particles. This reaction allows HDL to mature and participate in reverse cholesterol transport.In LCAT deficiency:1. HDL levels are markedly decreased because HDL cannot mature properly.2. Free cholesterol accumulates in plasma.3. Abnormal lipoprotein particles form.4. There is impaired clearance of triglyceride-rich lipoproteins.As a result, VLDL levels increase, and patients may develop hypertriglyceridemia. LDL is usually normal or reduced, and chylomicrons are not specifically elevated as a primary feature.Key features of LCAT deficiency include:1. Very low HDL2. Elevated triglycerides (due to increased VLDL)3. Corneal opacities4. Hemolytic anemia5. Renal diseaseTherefore, the best answer is (C) VLDL.

Question 40. A25-year-old alcoholic presents with edema, hypertension, ocular disturbances, and altered mental status. He is diagnosed with high-output cardiac failure due to wet beriberi. This condition results from a deficiency of which nutrient?

A. Vit B3

B. Vit B6

C. Vit B9

D. Vit B1

Correct answer: D

The clinical syndrome described is Wet Beriberi, which is a form of cardiovascular disease caused

Question 41. A newborn presents with vomiting, lethargy, and seizures. Laboratory evaluation reveals hyperammonemia, elevated glutamine levels in the cerebrospinal fluid, blood, and urine, and increased urinary orotic acid. Which enzyme deficiency is the most likely cause?

A. CPS-I

B. Arginase

C. OTC

D. Argininosuccinate synthetase

Correct answer: C

The urea cycle is the primary pathway for the disposal of excess nitrogen in the form of urea. A deficiency in any of the urea cycle enzymes leads to the accumulation of ammonia (hyperammonemia) and other upstream metabolites. The most common urea cycle disorder is Ornithine Transcarbamylase (OTC) deficiency. OTC is the enzyme that combines carbamoyl

phosphate with ornithine to form citrulline. A block at this step causes severe hyperammonemia. In extrahepatic tissues like the brain, the primary mechanism for detoxifying ammonia is by combining it with glutamate to form glutamine, a reaction catalyzed by glutamine synthetase. Therefore, in a state of severe hyperammonemia caused by an

Question 42. True about type 1 diabetes mellitus :

A. Decreased protein catabolism

B. Decreased hepatic Glucose output

C. Increased lipolysis

D. Increase glucose uptake

Correct answer: C

Type 1 diabetes mellitus is characterized by an absolute deficiency of insulin due to autoimmune destruction of pancreatic beta cells. Insulin is the primary anabolic hormone in the body. Its absence leads to a profound catabolic state. One of the key roles of insulin is to suppress the activity of hormone-sensitive lipase in adipose tissue. In the state of absolute insulin deficiency seen in uncontrolled Type 1 diabetes, this inhibitory signal is lost. This leads to unrestrained activity of hormone-sensitive lipase, resulting in massive breakdown of stored triglycerides into free fatty acids and glycerol. This process is called increased lipolysis. The free fatty acids are then transported to the liver, where they are converted into ketone bodies, leading to diabetic ketoacidosis. The other statements are incorrect : insulin deficiency leads to increased protein catabolism, increased hepatic glucose output (from unchecked gluconeogenesis and glycogenolysis), and decreased glucose uptake by peripheral tissues like muscle and fat.

Question 43. Which of the following proteins is not synthesized in the liver?

A. Phase protein

B. Immunoglobulins

C. Albumin

D. Plasma hormone

Correct answer: B

The liver is the primary site of synthesis for the vast majority of plasma proteins. This includes albumin, which is the most abundant plasma protein, all of the coagulation factors (except for part of Factor VIII), and most of the acute phase proteins (like C-reactive protein and

Question 44. Type of cholesterol present in gallstones :

A. Amorphous cholesterol monohydrate.

B. Amorphous cholesterol dihydrate.

C. Crystalline Cholesterol dihydrate.

D. Crystalline cholesterol monohydrate.

Correct answer: D

The most common type of gallstones found in Western populations are cholesterol gallstones. These form when the bile in the gallbladder becomes supersaturated with cholesterol. Normally, cholesterol is kept soluble in bile through the formation of micelles with bile salts and phospholipids. When the concentration of cholesterol exceeds the solubilizing capacity of the bile, it can no longer remain in solution and begins to precipitate out. This initial step involves the nucleation of cholesterol molecules from the supersaturated bile. These molecules then aggregate and grow into macroscopic stones. The chemical form of the cholesterol that precipitates is anhydrous cholesterol, which then rapidly converts to stable crystalline cholesterol monohydrate. These plate-like crystals are the fundamental building blocks of cholesterol gallstones. Examination of the stones reveals these characteristic cholesterol monohydrate crystals.

Question 45. Collagen present in skin is

A. Type II

B. Type I

C. Type III

D. Type IV

Correct answer: B

Collagen is the most abundant protein in the human body and is the main structural component of connective tissues. There are many different types of collagen, each with a specific tissue distribution and function. The skin, particularly its dermal layer, is composed predominantly of Type I collagen. Type I collagen is a fibrillar collagen that forms thick, strong fibers, providing the dermis with its immense tensile strength and structural integrity. Type III collagen (reticular fibers) is also present in the skin, particularly in the papillary dermis and around blood vessels, but Type I is the major component (making up about 80% of dermal collagen). Type II collagen (A) is the principal collagen found in cartilage. Type IV collagen (D) is a non-fibrillar, network-forming collagen that is the primary structural component of all basement membranes, including the dermal-epidermal junction in the skin.

Question 46. Which of the following molecules functions as a ribozyme?

A. polymerase

B. Ribonuclease

C. Transpeptidase

D. Peptidyl Transferase

Correct answer: D

A ribozyme is a ribonucleic acid (RNA) molecule that possesses catalytic activity, meaning it can function as an enzyme. While most biological catalysts are proteins, certain RNA molecules can also catalyze chemical reactions. The most prominent and fundamental example of a ribozyme

is the large ribosomal RNA (rRNA) component of the ribosome. The crucial step of protein synthesis, the formation of a peptide bond between amino acids, is catalyzed not by a ribosomal protein but by the peptidyl transferase center located within the23S (in prokaryotes) or28S (in eukaryotes) rRNA of the large ribosomal subunit. This discovery that RNA could act as a catalyst was a major breakthrough in molecular biology and led to the RNA world hypothesis. The other options are all protein enzymes : poly(A) polymerase, ribonuclease, and transpeptidase.

Question 47. Type I hyperlipoproteinemia is characterized by which feature?

A. Elevated LDL

B. Elevated HDL

C. Elevated chylomicrons

D. Elevated lipoprotein lipase

Correct answer: C

Type I hyperlipoproteinemia, also known as familial chylomicronemia syndrome, is a rare autosomal recessive disorder of lipid metabolism. The condition is characterized by a massive accumulation of chylomicrons in the plasma. This is caused by a deficiency in the enzyme lipoprotein lipase (LPL) or its cofactor, apolipoprotein C-II. LPL is the enzyme located on the surface of capillary endothelial cells that is responsible for breaking down the triglycerides within chylomicrons and VLDL, allowing for the uptake of fatty acids by peripheral tissues. In its absence, chylomicrons, which are synthesized in the intestine to transport dietary fat, cannot be cleared from the circulation. This leads to extremely high triglyceride levels (hypertriglyceridemia), eruptive xanthomas, and a high risk of recurrent acute pancreatitis. A classic sign is a creamy, supernatant layer that forms when a blood sample is left to stand.

Question 48. Which amino acid links the Krebs cycle and the urea cycle?

A. Fumarate

B. Alanine

C. Arginine

D. Aspartate

Correct answer: A

Aspartate is the amino acid that links the Krebs (TCA) cycle and the urea cycle. The connection between these two cycles is known as the aspartate–argininosuccinate shunt.In the urea cycle, aspartate combines with citrulline to form argininosuccinate in a reaction catalyzed by argininosuccinate synthetase. This step is important because aspartate donates the second nitrogen that ultimately becomes part of urea.Aspartate itself is formed from oxaloacetate, a key intermediate of the Krebs cycle.

Question 49. Vitamin A is stored in which type of cells?

A. Cells of Ito

B. Hepatocyte

C. Endothelial cell

D. Kupffer cell

Correct answer: A

The liver is the primary storage organ for Vitamin A in the body, holding up to 80% of the

Question 50. Glanzmann thrombasthenia results from a defect in which component?

A. Decreased Gplb

B. Decreased GpIIb/IIIa

C. Anti-GpIIb/IIIa antibodies

D. Inhibition or deficiency of ADAMTS 13

Correct answer: B

Glanzmann thrombasthenia is a rare, autosomal recessive bleeding disorder characterized by a qualitative or quantitative defect in platelet function. The underlying molecular pathology is a deficiency or dysfunction of the glycoprotein IIb/IIIa (GpIIb/IIIa) receptor on the surface of platelets. This receptor is an integrin that, upon platelet activation, undergoes a conformational change and becomes the binding site for fibrinogen. Fibrinogen then acts as a bridge, cross-linking adjacent platelets to one another. This cross-linking is the essential final step in the formation of a stable platelet aggregate and primary hemostatic plug. In Glanzmann thrombasthenia, the absence of functional GpIIb/IIIa receptors means that platelets can adhere to injured endothelium but cannot aggregate. This leads to a severe bleeding tendency, typically manifesting as mucocutaneous bleeding such as epistaxis, gingival bleeding, and menorrhagia. A decreased Gplb (A) is seen in Bernard-Soulier syndrome, while anti-GpIIb/IIIa antibodies (C) are found in immune thrombocytopenic purpura.

Question 51. Which of the following is an apoptotic gene?

A. Bax

B. Bcl2

C. Bclx

D. Mcl

Correct answer: A

Apoptosis, or programmed cell death, is tightly regulated by a family of proteins known as the Bcl-2 family. This family includes both pro-apoptotic (pro-death) and anti-apoptotic (pro-survival) members. The balance between these opposing factions determines whether a cell lives or dies. The anti-apoptotic members, such as Bcl-2, Bcl-xL, and Mcl-1, work by preserving the integrity of the mitochondrial outer membrane and preventing the release of cytochrome c. In contrast, the pro-apoptotic members promote cell death. This group includes effector proteins like Bax and Bak. When activated, Bax and Bak oligomerize and form pores in

the mitochondrial outer membrane, leading to the release of cytochrome c into the cytoplasm. This release triggers the activation of caspases and initiates the execution phase of apoptosis. Therefore, Bax is a key pro-apoptotic gene that directly initiates the mitochondrial pathway of cell death.

Question 52. Alpha- antitrypsin exerts its effect by inhibiting which enzyme?

A. Inhibition of trypsin

B. Inhibition of trypsinogen

C. Inhibition of elastase

D. Inhibition of chymotrypsin

Correct answer: C

Alpha-1 antitrypsin (AAT) is a serine protease inhibitor (serpin) that is primarily synthesized in the liver. Despite its name, its most important physiological role is not the inhibition of trypsin, but rather the inhibition of neutrophil elastase. Neutrophil elastase is a powerful proteolytic enzyme that is released by neutrophils at sites of inflammation to help degrade bacteria and cellular debris. However, if left unchecked, this enzyme can also cause significant damage to host tissues, particularly the delicate elastin fibers in the alveolar walls of the lungs. AAT circulates in the blood and diffuses into tissues,

Question 53. Which of the following conditions is inherited in an autosomal recessive manner?

A. Albinism

B. Huntington's syndrome

C. Marfan's syndrome

D. Neurofibromatosis-1

Correct answer: A

The mode of inheritance describes how a genetic trait or disorder is passed through families. Oculocutaneous albinism is a classic example of an autosomal recessive disorder. It is caused by mutations in genes involved in the synthesis of melanin pigment, most commonly the tyrosinase gene. For a person to be affected, they must inherit two copies of the mutated gene, one from each of their carrier parents. Individuals who inherit only one copy of the mutation are unaffected carriers. In contrast, the other conditions listed are all classic examples of autosomal dominant disorders. Huntington's syndrome, Marfan's syndrome, and Neurofibromatosis type 1 are all caused by a mutation in a single copy of the respective gene. In these disorders, an affected individual has a 50% chance of passing the condition on to each of their children, and the trait typically appears in every generation (vertical transmission).

Question 54. In rheumatic heart disease, the fish mouth appearance of the valve is caused by which pathological change?

A. Rupture of valve

B. Calcification & fibrosis

C. Hypertrophy of ventricular wall

D. None of the above

Correct answer: B

The fish mouth or buttonhole appearance is the pathognomonic gross pathological finding of chronic rheumatic mitral stenosis. Rheumatic heart disease is a consequence of recurrent

Question 55. Follicular lymphoma shows positivity for which of the following markers?

A. Bcl-1

B. Bcl-6

C. Bcl-2

D. None of the above

Correct answer: C

Follicular lymphoma is a type of B-cell non-Hodgkin lymphoma that arises from germinal center B-cells. The pathognomonic genetic and immunohistochemical hallmark of follicular lymphoma is the overexpression of the BCL-2 protein. This is caused by a characteristic chromosomal translocation, t(14;18)(q32;q21). This translocation places the BCL2 gene from chromosome 18 under the control of the powerful immunoglobulin heavy chain gene promoter on chromosome 14. BCL-2 is an anti-apoptotic protein. In normal germinal center B-cells, BCL-2 is downregulated to allow for the apoptosis of cells that do not produce high-affinity antibodies. The aberrant, constitutive overexpression of BCL-2 in follicular lymphoma cells makes them resistant to apoptosis, allowing them to accumulate and form a tumor. Bcl-1 (cyclin D1) is a marker for mantle cell lymphoma. Bcl-6 is a marker of normal germinal center B-cells.

Question 56. What histological features differentiate Ulcerative Colitis from Crohn’s Disease?

A. Diffuse distribution of pseudopolyps

B. Mucosal edema

C. Crypt abscess

D. Lymphoid aggregates in the mucosa

Correct answer: C

Ulcerative colitis and Crohn's disease are both inflammatory bowel diseases, but they differ histologically.Crypt abscesses are a characteristic microscopic feature of ulcerative colitis (UC). A crypt abscess forms when neutrophils accumulate within the glandular crypts of the colonic mucosa. In UC, inflammation is typically continuous and confined to the mucosa and submucosa, beginning in the rectum and extending proximally. The mucosa shows ulceration, gland distortion, and frequent crypt abscess formation.In contrast, Crohn’s disease shows

transmural inflammation, meaning it involves the entire bowel wall thickness. It is characterized by skip lesions, fissures, fistulas, and noncaseating granulomas. Lymphoid aggregates may be present in Crohn's disease but are not specific. Mucosal edema and pseudopolyps can occur in both conditions and therefore are not distinguishing features.Thus, among the given options, crypt abscess is the most specific histologic finding that differentiates ulcerative colitis from Crohn's disease.

Question 57. What leads to intracorpuscular defects that result in hemolysis?

A. Uremic syndrome

B. PCH (Paroxysmal Cold Hemoglobinuria)

C. PNH (Paroxysmal Nocturnal Hemoglobinuria)

D. Portal hypertension

Correct answer: C

Hemolytic anemias are classified based on whether the defect causing the red blood cell destruction is intrinsic to the cell itself (intracorpuscular) or due to an external factor (extracorpuscular). Paroxysmal Nocturnal Hemoglobinuria (PNH) is a classic example of an acquired intracorpuscular defect. It is caused by a somatic mutation in the PIGA gene in a

Question 58. Which type of necrosis occurs in blood vessels as a result of immune-mediated reactions?

A. Coagulation

B. Liquefaction

C. Fibrinoid

D. None

Correct answer: C

Fibrinoid necrosis is a specific pattern of necrosis that is characteristically seen in the walls of blood vessels in the context of certain immune-mediated diseases and severe hypertension. It is a hallmark of immune-complex mediated vasculitis (Type III hypersensitivity reactions), such as Polyarteritis Nodosa or Lupus vasculitis. In these conditions, circulating antigen-antibody complexes are deposited in the walls of arteries and arterioles. This deposition triggers an intense inflammatory reaction that damages the vessel wall. Histologically, the damaged vessel wall loses its normal structure and is replaced by a bright pink, amorphous, and smudgy material that resembles fibrin, hence the name fibrinoid. This material is composed of a mixture of the deposited immune complexes, plasma proteins (including fibrin that has leaked from the damaged vessel), and necrotic cellular debris.

Question 59. In a patient with lipoprotein lipase deficiency, which substance rises after a fatty meal?

A. Chylomicron

B. LDL

C. HDL

D. Apo-A

Correct answer: A

No explanation is available for this recall question yet.

Question 60. In Wilson’s disease, the urinary excretion of which substance is decreased?

A. Serine

B. Methyl-Histidine

C. Phosphotyrosine

D. None of the Above

Correct answer: D

Wilson's disease is a genetic disorder caused by mutation of the ATP7B gene, leading to impaired copper transport and decreased incorporation of copper into ceruloplasmin. As a result:1. Copper accumulates in the liver, brain, and cornea2. Serum ceruloplasmin levels decrease3. Urinary copper excretion increases (due to excess free copper)The key laboratory feature is increased urinary copper, not decreased excretion of amino acids.The substances listed:Serine1. Methyl-histidine2. Phosphotyrosineare not characteristically decreased in urine in Wilson’s disease.Although renal tubular dysfunction (Fanconi-like syndrome) may occur in Wilson’s disease and can actually cause increased urinary amino

Question 61. What is the function of IL-?

A. Enhances hematopoiesis

B. Stimulates mast cells

C. Has antiviral properties

D. Endogenous pyrogen

Correct answer: D

Interleukin-1 (IL-1), along with Interleukin-6 (IL-6) and Tumor Necrosis Factor-alpha (TNF-α), is a key pro-inflammatory cytokine that plays a central role in the acute phase response to infection or injury. One of its most well-known systemic effects is its function as an endogenous pyrogen. When macrophages and other immune cells are activated, they release IL-1 into the circulation. IL-1 then travels to the hypothalamus in the brain, where it stimulates the local production of prostaglandin E2 (PGE2). PGE2 acts on the thermoregulatory center of the hypothalamus to reset the body's temperature set-point to a higher level, resulting in fever. This febrile response is an important part of the innate immune response that can help to inhibit the growth of pathogens. While IL-1 has many other functions, including stimulating the production of acute-phase proteins and promoting inflammation, its role as an endogenous pyrogen is a primary and defining characteristic.

Question 62. IL- is activated by which of the following?

A. Capsase 1

B. Capsase 3

C. Capsase 8

D. Capsase 5

Correct answer: A

Interleukin-1β (IL-1β), a potent pro-inflammatory cytokine, is synthesized as an inactive precursor molecule called pro-IL-1β. Its activation and secretion are a tightly regulated two-step process. First, a priming signal (like TLR activation) induces the transcription and translation of pro-IL-1β. The second step, the proteolytic cleavage of pro-IL-1β into its

Question 63. Krabbe's disease is-

A. Deficiency of Beta- galactosylcermidase

B. Deficiency of aryl sulphatase

C. Alpha galactosidase

D. Acid lipase

Correct answer: A

Krabbe disease, also known as globoid cell leukodystrophy, is a rare and devastating autosomal recessive lysosomal storage disorder. It is caused by a deficiency of the lysosomal enzyme galactocerebrosidase (also called beta-galactosylceramidase). This enzyme is responsible for the catabolism of galactocerebroside, a key component of myelin. The enzyme deficiency leads to the accumulation of galactocerebroside and its toxic metabolite, psychosine, within the oligodendrocytes (in the CNS) and Schwann cells (in the PNS). This accumulation is cytotoxic and triggers widespread apoptosis of these myelin-producing cells, leading to progressive and severe demyelination of the central and peripheral nervous systems. The classic infantile form presents with extreme irritability, stiffness, and developmental regression, leading to death in early childhood.

Question 64. What is the preferred treatment for idiopathic thrombocytopenic purpura (ITP)?

A. Blood transfusion

B. Spontaneous recovery

C. IV infusion

D. Splenectomy

Correct answer: D

No explanation is available for this recall question yet.

Question 65. A gunshot wound showing burning, blackening, tattooing, and a dirt collar is indicative of what type of injury?

A. Close shot entry wound

B. Close shot exit wound

C. Distant shot entry wound

D. Distant shot exit wound

Correct answer: A

The findings described are all characteristic features of a gunshot entry wound fired from a close range.Burning (searing) is caused by the hot gases from the muzzle of the gun contacting the skin, which only occurs at contact or very close range.Blackening (soot deposition) is the deposit of carbon soot on the skin, which is easily wiped away. It indicates a firing distance within about 30 cm.Tattooing (stippling) is the embedding of unburnt or partially burnt gunpowder particles into the skin, which cannot be wiped away. It is seen in shots fired from an intermediate range (up to about 60 cm).A dirt collar (or abrasion collar) is a ring of abraded skin around the entry hole caused by the friction and indentation of the spinning bullet as it enters the skin.The combination of all these features—especially the burning, blackening, and tattooing—definitively identifies the wound as

Question 66. Perjury is punishable under which section of the Indian Penal Code (IPC)?

A. Section 193

B. Section 191

C. Section 197

D. Section 190

Correct answer: A

In the Indian Penal Code, the act of perjury is defined in Section 191 as giving false evidence and in Section 192 as fabricating false evidence. However, the punishment for committing these acts is explicitly detailed in Section 193 of the IPC. This section serves as the primary penal provision for perjury. It stipulates that anyone who intentionally gives false evidence or fabricates false evidence for use in any stage of a judicial proceeding shall be punished with imprisonment for a term which may extend to seven years, and shall also be liable to a fine. For false evidence given in any other case, the punishment is imprisonment for up to three years, and a fine. Therefore, while Section 191 defines the crime, Section 193 is the legal provision that prescribes the punishment for it, making it the correct answer for the punishment of perjury.

Question 67. Viscera in toxicology is stored in?

A. Glycerine

B. Rectified spirit

C. Formalin

D. Saturated salt solution

Correct answer: B

When viscera (internal organs) are collected during a postmortem examination for toxicological analysis, it is crucial to preserve them in a solution that prevents decomposition without interfering with the chemical tests for poisons. The standard preservative used for this purpose in India and many other regions is rectified spirit, which is a highly concentrated ethanol solution (approximately 95% alcohol by volume). Ethanol is an effective preservative that prevents bacterial putrefaction of the tissues. Importantly, it is chemically neutral and does not interfere with the standard extraction and detection methods for most common poisons. In contrast, formalin (C) is an excellent preservative for histopathology but is absolutely contraindicated for toxicology, as it denatures proteins and can interfere with the chemical analysis of many toxins. A saturated salt solution can be used if rectified spirit is unavailable, but the latter is the standard.

Question 68. Identical twins will differ in which of the following characteristics?

A. Fingerprints

B. DNA copies

C. Iris colour

D. Blood grou

Correct answer: A

Monozygotic, or identical, twins originate from a single fertilized egg that splits into two, giving them the exact same genetic makeup. As a result,

Question 69. Degloving skin involves the removal of?

A. Skin, subcutaneous fat, fascia, muscle

B. Skin, subcutaneous fat, fascia

C. Skin only

D. Skin, subcutaneous fat

Correct answer: D

A degloving injury is a type of severe mechanical injury in which the skin and underlying subcutaneous tissue are forcibly separated from the deeper structures due to traction or shearing forces. It is commonly seen in road traffic accidents or machinery-related trauma.In a degloving injury:1. The skin2. And the subcutaneous fat (subcutaneous tissue) are torn away from the underlying fascia, muscles, and bones.The deeper structures such as fascia, muscle, and bone usually remain intact, although they may be exposed. Because the skin and subcutaneous tissue are lifted off together as a flap, it resembles the removal of a glove—hence the term “degloving.”It does not typically include removal of fascia or muscle, which eliminates options (A) and (B). It also involves more than just the skin alone, ruling out option (C).Therefore, the correct answer is : (D) Skin, subcutaneous fat

Question 70. Exhibitionism, a form of sexual perversion, is covered under which section of the Indian Penal Code (IPC)?

A. Section 290

B. Section 294

C. Section 230

D. Section 291

Correct answer: B

Exhibitionism, a paraphilia involving the exposure of one's genitals to an unsuspecting stranger for sexual gratification, is prosecuted in India primarily under Section 294 of the Indian Penal Code (IPC). This section deals with

Question 71. Which part of the body shows the earliest onset of rigor mortis?

A. Eyelids

B. Myocardium

C. Jaw

D. Neck

Correct answer: B

Rigor mortis is the postmortem stiffening of muscles due to depletion of ATP, leading to sustained actin–myosin cross-linking. It typically begins within 1–2 hours after death.Although rigor mortis is first noticeable externally in small muscles such as the eyelids and jaw, the earliest onset actually occurs in the myocardium (heart muscle). The myocardium has high metabolic activity and rapid ATP depletion after death, causing it to stiffen earlier than skeletal muscles.However, this cardiac rigor is not externally visible. Clinically and forensically, rigor mortis is first observed in the smaller voluntary muscles—especially the eyelids, followed by the jaw, neck, upper limbs, trunk, and lower limbs—following Nysten’s law (head to toe progression).Thus:1. Earliest overall onset → Myocardium2. Earliest externally visible sign → EyelidsSince the question asks which part shows the earliest onset, the correct answer is : (B) Myocardium

Question 72. How can Battered Baby Syndrome be identified in a suspected child?

A. Stab wound

B. Gunshot wound

C. Bruises of different ages

D. None of thesep

Correct answer: C

Battered Baby Syndrome, a form of non-accidental injury or child abuse, is a clinical diagnosis based on a pattern of injuries that are inconsistent with the provided history. One of the most classic and pathognomonic cutaneous findings is the presence of multiple bruises in different stages of healing. The age of a bruise can be estimated by its color (e.g., fresh bruises are

reddish-purple, older ones become greenish, then yellowish-brown). Finding bruises of various colors on a child indicates that the injuries were inflicted at different times, which is a strong indicator of repeated trauma and is highly suggestive of abuse. Furthermore, bruises in specific locations, such as on the torso, ears, or neck of a non-ambulatory infant, are also highly suspicious. While single injuries can be accidental, this pattern of repeated injury over time is the key to identifying the syndrome.

Question 73. What is the mechanism by which buspirone exerts its therapeutic effect?

A. 5 HT1A partial agonism

B. 5 HT1B antagonism

C. 5 HT1B partial agonism

D. 5 HT2C antagonism

Correct answer: A

Buspirone is a non-benzodiazepine anxiolytic drug primarily used for the treatment of generalized anxiety disorder. Its mechanism of action is distinct from other anxiolytics. Its primary therapeutic effect is mediated through its activity as a partial agonist at the serotonin 5-HT_1 receptor. These receptors are located both presynaptically (where they act as autoreceptors to inhibit serotonin release) and postsynaptically. By acting as a partial agonist on the presynaptic autoreceptors, buspirone initially reduces the firing of serotonergic neurons. With chronic administration, this leads to a desensitization and downregulation of these autoreceptors, which is thought to ultimately result in an increase in serotonergic neurotransmission, producing the anxiolytic effect. This mechanism accounts for buspirone's delayed onset of action (2-4 weeks) and its lack of sedative, hypnotic, or abuse potential associated with benzodiazepines.

Question 74. Which of the following statements accurately explains the mechanism of action of azole antifungals?

A. Inhibits the synthesis of ergosterol

B. Inhibits Thymidylate synthase

C. Targeting Beta-1,3-glucan

D. Disruption of cell wall

Correct answer: A

The azole class of antifungal drugs (which includes imidazoles like ketoconazole and triazoles like fluconazole and itraconazole) works by disrupting the integrity of the fungal cell membrane. They achieve this by inhibiting the synthesis of ergosterol, which is the primary sterol component of the fungal cell membrane and is analogous to cholesterol in mammalian cells. Specifically, azoles inhibit the fungal cytochrome P450 enzyme 14α-demethylase. This enzyme is essential for converting lanosterol to ergosterol. The inhibition of this step leads to a

depletion of ergosterol and an accumulation of toxic sterol precursors in the fungal cell membrane. This disrupts the membrane's structure and function, increasing its permeability and ultimately inhibiting fungal growth (a fungistatic effect). Echinocandins (C) target beta-glucan in the cell wall, and 5-flucytosine inhibits thymidylate synthase (B).

Question 75. Which fluoroquinolone possesses the highest bioavailability?

A. Moxifloxacin

B. Gatifloxacin

C. Levofloxacin

D. Ciprofloxacin

Correct answer: C

No explanation is available for this recall question yet.

Question 76. Which of the following drugs is an orally active direct Factor Xa inhibitor?

A. Rivaroxaban

B. Argatroban

C. Dabigatran

D. Bivalirudin

Correct answer: A

The direct oral anticoagulants (DOACs) are a newer class of drugs that offer alternatives to warfarin. They are classified based on their target in the coagulation cascade. The -xaban drugs are direct inhibitors of Factor Xa. Rivaroxaban, along with apixaban and edoxaban, is an orally active medication that binds directly to the active site of Factor Xa, inhibiting its activity and thereby preventing the conversion of prothrombin to thrombin. This effectively blocks the final common pathway of the coagulation cascade. In contrast, dabigatran (C) is an orally active direct thrombin (Factor IIa) inhibitor. Argatroban (B) and bivalirudin (D) are also direct thrombin inhibitors, but they are administered parenterally (intravenously), not orally. Therefore, rivaroxaban is the correct choice as an orally active direct Factor Xa inhibitor.

Question 77. Which drug is considered the treatment of choice for bidirectional or centro-chilar tachycardia caused by digitalis toxicity?

A. Lidocaine

B. Reducing the dosage of digoxin itself reverses the condition

C. Verapamil

D. Beta blockers

Correct answer: A

Bidirectional ventricular tachycardia is a rare and specific arrhythmia that is almost pathognomonic for severe digitalis (digoxin) toxicity. It is a life-threatening arrhythmia that

requires immediate treatment. While stopping the digoxin and correcting electrolyte abnormalities are crucial first steps, an antiarrhythmic drug is often needed to terminate the tachycardia. The drug of choice for treating ventricular arrhythmias caused by digoxin toxicity is lidocaine. Lidocaine is a Class IB antiarrhythmic that blocks sodium channels. It is particularly effective on depolarized or ischemic ventricular tissue and has a low risk of depressing myocardial contractility. It acts to suppress the abnormal automaticity and re-entrant circuits caused by the digoxin toxicity. The definitive treatment for life-threatening digoxin toxicity is the administration of digoxin-specific antibody fragments (DigiFab), but for acute arrhythmia control, lidocaine is the preferred agent.

Question 78. In HIV-infected patients, at what CD4 count should antiretroviral therapy (ART) be started, even if no symptoms are present?

A. 100

B. 150

C. 200

D. 350

Correct answer: C

HIV management guidelines have evolved over time. Although current recommendations advise starting antiretroviral therapy (ART) regardless of CD4 count, older guideline-based exam questions often use a CD4 threshold.

Question 79. Filgrastim is used in the treatment of?

A. Anemia

B. Neutropenia

C. Malaria

D. Filarial

Correct answer: B

Filgrastim is a recombinant form of human Granulocyte Colony-Stimulating Factor (G-CSF). G-CSF is a hematopoietic growth factor that specifically stimulates the proliferation, differentiation, and maturation of neutrophil precursors in the bone marrow. It also enhances the function of mature neutrophils. The primary clinical use of filgrastim is for the treatment and prevention of neutropenia (a low absolute neutrophil count). It is most commonly used in oncology patients to reduce the duration and severity of chemotherapy-induced neutropenia, thereby decreasing the risk of febrile neutropenia and serious infections. It is also used to treat congenital neutropenia, cyclic neutropenia, and to mobilize hematopoietic stem cells for transplantation. It does not stimulate the production of red blood cells (for anemia) or platelets and has no role in treating parasitic infections like malaria or filariasis.

Question 80. A patient with rheumatoid arthritis has been on methotrexate, steroids,

and NSAIDs for months without improvement. What should be the next likely step in management? MEDINK CHAPTER 06_PHARMACOLOGY

B. Amiloride

C. Nicorandil

D. Methyldopa

Correct answer: C

Nicorandil is an anti-anginal drug with a unique dual mechanism of action. One of its primary mechanisms is its function as an ATP-sensitive potassium (K+) channel opener. By opening these K+ channels in the cell membrane of vascular smooth muscle, nicorandil causes an efflux of potassium ions, which leads to hyperpolarization of the cell membrane. This hyperpolarization closes voltage-gated calcium channels, reducing calcium influx and resulting in smooth muscle relaxation and vasodilation, particularly of coronary arteries and veins. Its second mechanism is as a nitric oxide donor, which also contributes to vasodilation. Spironolactone (A) is an aldosterone antagonist, and amiloride (B) is an epithelial sodium channel (ENaC) blocker; they are both potassium-sparing diuretics but do not directly act on potassium channels. Methyldopa (D) is a centrally acting alpha-2 agonist.

Question 81. What is the drug of choice for smoking cessation?

A. Acamprosate

B. Varenicline

C. Thalidomide

D. Tryptophan

Correct answer: B

Varenicline is considered one of the most effective first-line pharmacological treatments for smoking cessation. Its mechanism of action is specifically targeted at the role of nicotine in addiction. Varenicline is a partial agonist at the α4β2 nicotinic acetylcholine receptor, which is the primary receptor that mediates the rewarding and reinforcing effects of nicotine in the brain. As a partial agonist, it has a dual effect : it provides a moderate level of sustained dopaminergic stimulation, which helps to relieve the symptoms of nicotine withdrawal and craving (agonist effect). At the same time, it competitively binds to the receptor, blocking nicotine from cigarettes from binding and reducing the pleasure and reward associated

Question 82. What is the drug of choice for treating cyclosporiasis?

A. Trimethoprim and sulfamethoxazole combination

B. Paromomycin

C. Aripiprazole

D. Cyclosporin

Correct answer: A

Cyclosporiasis is an intestinal illness caused by the protozoan parasite Cyclospora cayetanensis.

It is typically transmitted through contaminated food or water and causes a prolonged, relapsing, watery diarrhea. Unlike some other protozoan infections that are self-limiting in immunocompetent hosts, cyclosporiasis often requires antibiotic treatment for resolution. The drug of choice for treating this infection is the combination of trimethoprim and sulfamethoxazole (TMP-SMX), also known as co-trimoxazole. A standard 7 to 10-day course of TMP-SMX is highly effective in eradicating the parasite and resolving the clinical symptoms. In patients who are allergic to sulfa drugs, alternative treatments like ciprofloxacin may be considered. Paromomycin is an aminoglycoside used for other intestinal protozoa like Entamoeba and Cryptosporidium. Cyclosporin is an immunosuppressant.

Question 83. What is the mechanism by which curare-like drugs exert their muscle-relaxant action?

A. Blocks ACh synthesis

B. Blocks ACh receptors

C. Persistent depolarization

D. Agonistic with ACh receptors

Correct answer: B

Curare-like drugs refer to the class of neuromuscular blocking agents known as non-depolarizing blockers. Curare is the historical prototype for this class, which now includes drugs like rocuronium, vecuronium, and cisatracurium. Their mechanism of action is to

Question 84. Which drug is considered the treatment of choice for managing the diphtheria carrier state?

A. Penicillin

B. Antitoxin

C. Penicillin or Erythromycin

D. Ciprofloxacin

Correct answer: C

The management of diphtheria involves two components : neutralization of the circulating toxin and eradication of the causative organism, Corynebacterium diphtheriae. For the treatment of acute diphtheria, both diphtheria antitoxin and an antibiotic are given. For the specific purpose of eradicating the asymptomatic carrier state, or for treating the infection itself, antibiotics are essential to eliminate the bacteria from the nasopharynx, thereby stopping toxin production and preventing transmission to others. The drugs of choice for this purpose are either a course of oral erythromycin (typically for 14 days) or a single intramuscular dose of benzathine penicillin G. Either of these regimens is highly effective in eradicating the carrier state. The antitoxin (B) neutralizes the toxin but has no effect on the bacteria themselves and is not used for carriers.

Question 85. Healthy human volunteers are included in which phase of clinical trials?

A. Phase 1

B. Phase 0

C. Phase 3

D. Phase 4

Correct answer: A

Clinical trials for new drugs are conducted in a series of sequential phases. Phase 1 clinical trials are the first studies conducted in humans after extensive preclinical testing. The primary purpose of Phase 1 is to assess the safety, tolerability, pharmacokinetics, and pharmacodynamics of a new drug. These trials are typically conducted on a small number of participants (usually 20-100) who are healthy human volunteers. The volunteers receive a single dose or short-term doses of the drug, starting at very low levels and gradually escalating, to determine the maximum tolerated dose and to identify any immediate adverse effects. Phase 0 involves microdosing in a very small number of subjects. Phase 2 and 3 trials are conducted on larger groups of patients with the target disease to assess efficacy and further evaluate safety. Phase 4 is post-marketing surveillance.

Question 86. Which drug is recommended as the treatment of choice for a scorpion sting?

A. EDTA

B. Neostigmine

C. N-acetylcysteine

D. Prazosin

Correct answer: D

Scorpion stings, particularly from the red scorpion (Mesobuthus tamulus) common in India, can cause a severe clinical syndrome characterized by an autonomic storm. The scorpion venom causes a massive release of catecholamines (from the adrenal medulla and sympathetic nerve endings) and acetylcholine (from parasympathetic nerve endings). The cardiovascular manifestations, which are the main cause of mortality, are dominated by the adrenergic effects : severe hypertension, tachycardia, and increased myocardial oxygen demand, leading to pulmonary edema and cardiogenic shock. The drug

Question 87. Which drug from the following options acts as an alpha- agonist?

A. Apraclonidine

B. Timolol

C. Prostaglandin analogues (PG analogues)

D. Verampamil

Correct answer: A

Apraclonidine is a topical ophthalmic medication used for the short-term reduction of

intraocular pressure (IOP). Its primary mechanism of action is as a relatively selective alpha-2 adrenergic agonist. When applied to the eye, apraclonidine stimulates alpha-2 receptors in the ciliary body. This stimulation leads to a decrease in the production of aqueous humor, which is the primary mechanism by which it lowers IOP. It may also have a secondary effect of increasing uveoscleral outflow. Apraclonidine and the more selective alpha-2 agonist, brimonidine, are an important class of drugs used in the treatment of glaucoma. Timolol (B) is a beta-blocker. Prostaglandin analogues (C) act on prostaglandin receptors. Verapamil (D) is a calcium channel blocker.

Question 88. Which drug is used to differentiate Myasthenia Gravis from a Cholinergic Crisis?

A. Pyridostigmine

B. Edrophonium

C. Methacholine

D. Clonidine

Correct answer: B

Both an undertreated myasthenic crisis and an overtreated cholinergic crisis can present with severe muscle weakness, making them difficult to distinguish clinically. The edrophonium test (Tensilon test) is a classic pharmacological test used to make this differentiation. Edrophonium is a very short-acting acetylcholinesterase inhibitor. A small intravenous dose is administered to the patient.If the patient has a myasthenic crisis (undertreated), the edrophonium will

Question 89. The conversion of norepinephrine to epinephrine is mainly by which enzyme/cofactor?

A. S-adenosyl methionine

B. Arginine

C. Phenylalanine

D. Dehydrogenase

Correct answer: A

The final step in the biosynthesis of epinephrine (adrenaline) is the conversion of norepinephrine. This reaction involves the methylation of the primary amine group of norepinephrine. The enzyme that catalyzes this reaction is phenylethanolamine N-methyltransferase (PNMT). This enzyme is found primarily in the cytosol of the chromaffin cells of the adrenal medulla. The methyl group required for this reaction is donated by the universal methyl donor molecule, S-adenosylmethionine (SAMe). SAMe transfers its methyl group to norepinephrine, converting it to epinephrine, and is itself converted to S-adenosylhomocysteine in the process. The expression of the PNMT enzyme is induced by high local concentrations of glucocorticoids, which explains why epinephrine synthesis is largely confined to the adrenal medulla.

Question 90. Which Carbapenem drug from the following options has the greatest risk of inducing seizures?

A. Imipenem

B. Ertapenem

C. Doripenem

D. Meropenem

Correct answer: A

No explanation is available for this recall question yet.

Question 91. What is the mechanism of action of Teduglutide in treating short bowel syndrome?

A. GLP-2 analog

B. HTla inhibitor

C. GLP-1 analogues

D. C-peptide analogues

Correct answer: A

Teduglutide is a medication used to treat short bowel syndrome (SBS) in patients who are dependent on parenteral nutrition. Short bowel syndrome is a malabsorptive state that occurs after extensive surgical resection of the small intestine. Teduglutide is a recombinant analog of human glucagon-like peptide-2 (GLP-2). GLP-2 is a naturally occurring hormone secreted by L-cells in the intestine that has potent intestinotrophic effects. It stimulates the growth and proliferation of the intestinal epithelium, increases villus height and crypt depth, and enhances the absorptive capacity of the remaining intestine. By mimicking the action of endogenous GLP-2, teduglutide promotes the structural and functional adaptation of the remnant bowel, leading to improved fluid and nutrient absorption and a reduction in the patient's dependence on parenteral support. GLP-1 analogues (C) are used for diabetes and obesity.

Question 92. Which drug is considered the preferred treatment for vomiting caused by chemotherapy?

A. Granisetron

B. Prazosin

C. Clonidine

D. Dimenhydrinate

Correct answer: A

Chemotherapy-induced nausea and vomiting (CINV) is a major side effect of many anticancer

Question 93. What is the benefit of using drugs in a fixed-dose combination?

A. Increases efficacy of the drug

B. Decreases adverse effects

C. Improves patient compliance

D. All of the above

Correct answer: D

Fixed-dose combinations (FDCs) contain two or more active drugs in a single dosage form. They are commonly used in chronic diseases such as tuberculosis, HIV, hypertension, and diabetes.One benefit is that FDCs can increase efficacy. When drugs with different mechanisms of action are combined, they may produce additive or synergistic therapeutic effects. This is especially important in infections like tuberculosis and HIV, where combination therapy also reduces the risk of drug resistance.FDCs may also decrease adverse effects in certain situations. Because each drug can be used at a lower dose than if given alone, dose-related side effects may be reduced. Additionally, combining drugs can sometimes balance unwanted effects.The most significant advantage is that FDCs improve patient compliance. By reducing the number of pills and simplifying treatment regimens, patients are more likely to take their medications regularly, leading to better disease control and outcomes.

Question 94. Which of the following is the most likely reason cisatracurium is preferred over atracurium?

A. Decreased histamine release

B. Increased histamine release

C. Due to elimination by Hoffmann elimination

D. Increased CNS toxicity

Correct answer: A

Atracurium and cisatracurium are both non-depolarizing neuromuscular blocking agents. Both are unique in that they undergo organ-independent degradation in the plasma via Hofmann elimination, a process dependent on pH and temperature (so C is a shared property, not a reason for preference). A major side effect of atracurium is its tendency to cause histamine release, especially at higher doses or with rapid injection. This can lead to undesirable clinical effects such as flushing, hypotension, tachycardia, and bronchospasm. Cisatracurium is one of the ten stereoisomers of atracurium. It was specifically developed because it is approximately four times more potent than atracurium and, crucially, it has a significantly lower propensity to cause histamine release. This makes it a much more hemodynamically stable drug, especially in critically ill or cardiovascularly compromised patients. This improved side-effect profile is the primary reason for its preference over atracurium in many clinical settings.

Question 95. Which drug is used to treat the Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)?

A. Tolvaptan

B. Desmopressin

C. VWB factor

D. Terlipressin

Correct answer: A

The Syndrome of Inappropriate Antidiuretic Hormone (SIADH) is characterized by excessive secretion of ADH (vasopressin), leading to impaired water excretion and resultant euvolemic hyponatremia. The goal of treatment is to correct the hyponatremia. The most specific pharmacological approach is to block the action of ADH at its receptor in the kidney. Tolvaptan

Question 96. Imipenem is administered together with cilastatin for what reason?

A. Combination of antibiotics is synergistic against Pseudomonas species

B. Cilastatin aids gastrointestinal absorption of active moiety, imipenem

C. Cilastatin inhibits beta-lactamase enzyme destroying imipenem

D. Cilastatin inhibits an enzyme in kidney destroying imipenem

Correct answer: D

Imipenem is a broad-spectrum carbapenem antibiotic. However, it is rapidly metabolized and inactivated in the kidneys by a specific enzyme called renal dehydropeptidase-I (DHP-I), which is located on the brush border of the proximal tubular cells. This rapid degradation would result in very low urinary concentrations and a short therapeutic half-life, limiting its clinical utility. To overcome this, imipenem is always co-administered with cilastatin. Cilastatin is a specific inhibitor of DHP-I. By blocking this enzyme, cilastatin prevents the renal metabolism of imipenem, thereby increasing its plasma half-life and achieving high, therapeutic concentrations of the active drug in the urine. This combination also reduces the potential nephrotoxicity of imipenem metabolites. Cilastatin itself has no antibacterial activity and does not inhibit beta-lactamases.

Question 97. Which of the following drugs acts on potassium (K^+) channels?

A. Start monotherapy with anti-TNF alpha drugs

B. Continue methotrexate and steroids

C. Stop oral methotrexate and start parenteral methotrexate

D. Add sulfasalazine

Correct answer: D

Rheumatoid arthritis is treated using a stepwise, treat-to-target approach aimed at achieving remission or low disease activity.Methotrexate is the first-line DMARD (disease-modifying antirheumatic drug). If a patient has been on methotrexate, steroids, and NSAIDs for several months without adequate improvement, the next recommended step is to escalate conventional DMARD therapy before moving to biologics.Adding another conventional synthetic DMARD such as sulfasalazine (often part of “triple therapy”: methotrexate + sulfasalazine + hydroxychloroquine) is an evidence-based next step. This combination is effective and cost-efficient.Why not the others?(A) Anti-TNF monotherapy: Biologics are usually added after failure of combination conventional DMARD therapy, not immediately as monotherapy.(B)

Continue same treatment: Inadequate response requires escalation.(C) Switch to parenteral methotrexate: Useful if absorption or intolerance is suspected, but lack of response suggests need for combination therapy.Therefore, the most appropriate next step is : (D) Add sulfasalazine

Question 98. IV Mannitol is used for the treatment of?

A. Acute congestive glaucoma

B. Pulmonary edema

C. Acute renal failure

D. Congestive heart failure (CHF)

Correct answer: A

Intravenous (IV) mannitol is an osmotic diuretic. When administered systemically, it increases the osmolarity of the plasma, creating an osmotic gradient that draws water out of

Question 99. Variation in how individuals respond to different doses of a drug is determined using which type of data?

A. Dose response curve

B. Therapeutic index

C. Bioavailability

D. Phase 1 clinical trials

Correct answer: A

A quantal dose-response curve is a graph that plots the percentage of a population of individuals that responds to a specific drug effect against the log of the dose administered. This type of curve is used to examine the variation in sensitivity to a drug across a population. It allows for the determination of key parameters like the ED_{50} (the dose that produces the desired effect in 50% of the population). The slope of the curve indicates the degree of variability; a steep slope means that most individuals respond to a narrow range of doses, while a shallow slope indicates a large variation in sensitivity, with some individuals responding to very low doses and others requiring very high doses. This information is crucial for determining the appropriate starting dose and dose range for a drug in clinical practice. The therapeutic index is a measure of drug safety, not variability.

Question 100. Which of the following features is shown by a drug that binds extensively to plasma proteins?

A. Less GFR

B. Less drug interaction

C. Higher volume of distribution

D. Less tubular secretion

Correct answer: A

When a drug enters the bloodstream, a fraction of it binds to plasma proteins, primarily albumin. This binding is reversible, and an equilibrium exists between the protein-bound drug and the free (unbound) drug. Only the free fraction is pharmacologically active and available for metabolism and excretion. Glomerular filtration in the kidney is a passive process that filters only the free, unbound drug from the plasma. The drug molecules that are bound to large proteins like albumin are too large to pass through the glomerular filtration barrier. Therefore, a drug with a high degree of plasma protein binding will have a low fraction of free drug available for filtration, resulting in a lower rate of glomerular filtration (less GFR). High protein binding also tends to reduce the volume of distribution (C) by restricting the drug to the vascular compartment and increases the potential for drug interactions (B).

Question 101. What is the mechanism of action of oseltamivir?

A. Protein synthesis inhibitor

B. Thymidylate synthetase inhibitor

C. Neuraminidase inhibitor

D. Pyrimidine analogues

Correct answer: C

Oseltamivir (Tamiflu) is an antiviral drug that is active against both influenza A and influenza B viruses. Its mechanism of action is the selective inhibition of the viral enzyme neuraminidase. Neuraminidase is a glycoprotein located on the surface of the influenza virus. This enzyme plays a critical role in the final stage of the viral replication cycle. It cleaves the sialic acid residues that bind the newly formed viral particles to the surface of the infected host cell. This cleavage is necessary for the release of the progeny virions, allowing them to spread and infect other respiratory epithelial cells. By inhibiting neuraminidase, oseltamivir prevents the release of new viruses from the infected cell, thus halting the spread of the infection within the respiratory tract. To be effective, the drug must be started early in the course of the illness, typically within 48 hours of symptom onset.

Question 102. True statements about colchicine include :

A. Inhibits neutrophil recruitment

B. Causes metaphase arrest

C. Useful in urate-lowering therapy

D. All of the above

Correct answer: D

Colchicine is an anti-inflammatory drug mainly used in gout and certain autoinflammatory conditions. It works by binding to tubulin and inhibiting microtubule polymerization.Colchicine inhibits neutrophil recruitment by disrupting microtubule-dependent processes such as chemotaxis, adhesion, and degranulation. Since neutrophils play a central role in the inflammatory response to monosodium urate crystals, this mechanism reduces inflammation

during acute gout attacks.It also causes metaphase arrest. Microtubules are essential for mitotic spindle formation during cell division. By preventing spindle assembly, colchicine arrests cells in metaphase. This property has been used in cytogenetic studies to visualize chromosomes.Although colchicine does not directly lower serum uric acid levels, it is useful in urate-lowering therapy. When drugs like allopurinol are started, rapid shifts in uric acid levels can

Question 103. Recurrent chronic infections with encapsulated bacteria in a child are most likely due to a deficiency of which IgG subclass?

A. IgG1

B. IgG2

C. IgG3

D. IgG4

Correct answer: B

The immune response against encapsulated bacteria (such as Streptococcus pneumoniae, Haemophilus influenzae type b, and Neisseria meningitidis) is highly dependent on T-cell independent B-cell responses that generate antibodies against the polysaccharide capsules of these organisms. These polysaccharide antigens primarily elicit an antibody response of the IgG2 subclass. Therefore, a selective deficiency of IgG2 is a primary immunodeficiency that classically presents with recurrent sinopulmonary infections caused by these specific encapsulated bacteria. While IgG1 is the most abundant subclass and is important for responses to protein antigens, and IgG3 is effective at activating complement, IgG2 is specifically crucial for mounting an effective defense against polysaccharide antigens. An inability to produce IgG2 leaves the patient vulnerable to these particular pathogens, as the polysaccharide capsule protects the bacteria from phagocytosis unless they are opsonized by specific antibodies.

Question 104. Which drug is considered the treatment of choice for Isospora infection?

A. Penicillin G

B. Benzathine penicillin

C. Co-trimoxazole

D. Albendazole

Correct answer: C

Infection with Isospora belli (now known as Cystoisospora belli) is a cause of chronic, watery diarrhea, particularly in immuno compromised

Question 105. A patient presents with abdominal discomfort, distension, bloody or mucus-laden diarrhea, tenesmus, and rectal prolapse. Stool examination shows

characteristic barrel-shaped eggs. Which organism is the likely cause?

A. Campylobacter

B. Clostridium difficile

C. Giardia lamblia

D. Trichuris

Correct answer: D

This is a classic presentation of a heavy infection with the whipworm, Trichuris trichiura. The key to the diagnosis is the finding of typical barrel-shaped eggs on stool examination. Trichuris eggs are highly distinctive, appearing lemon- or barrel-shaped with a thick, bile-stained shell and prominent, translucent polar plugs at both ends. While light infections are often asymptomatic, heavy infections, where the adult worms are embedded in the colonic mucosa, can cause a dysentery-like syndrome known as Trichuris Dysentery Syndrome. This is characterized by chronic mucoid or bloody diarrhea, abdominal pain, and tenesmus (a painful urge to defecate). In severe cases, particularly in children, the constant straining and heavy worm burden can lead to inflammation and edema of the rectum, resulting in rectal prolapse. This combination of clinical symptoms and pathognomonic egg morphology is diagnostic of trichuriasis.

Question 106. Contact isolation is done for all except?

A. MRSA

B. Mumps

C. Diphtheria

D. Both C & A

Correct answer: B

Isolation precautions are used in hospitals to prevent the transmission of infectious agents. Contact isolation is used for pathogens that are spread by direct or indirect contact with the patient or their environment. This includes multidrug-resistant organisms like Methicillin-resistant Staphylococcus aureus (MRSA) and

Question 107. The disc diffusion method is also known as :

A. Kirby-Bauer

B. VDRL

C. Dark field microscopy

D. None of these

Correct answer: A

The disc diffusion method is a standardized and widely used technique in clinical microbiology laboratories for performing antibiotic susceptibility testing. This method is also known as the Kirby-Bauer test. The procedure involves inoculating the surface of a Mueller-Hinton agar plate with a standardized suspension of the bacterial isolate to be tested. Paper discs, each

impregnated with a specific concentration of a different antibiotic, are then placed on the agar surface. During incubation, the antibiotics diffuse out from the discs into the agar, creating a concentration gradient. If the bacteria are susceptible to an antibiotic, their growth will be inhibited in a circular zone around the disc. The diameter of this zone of inhibition is measured and compared to standardized interpretive charts to classify the organism as susceptible, intermediate, or resistant to that particular antibiotic.

Question 108. Rubella virus belongs to which family?

A. Rhinovirus

B. Togavirus

C. Picornavirus

D. Orthomyxo

Correct answer: B

The Rubella virus, the causative agent of German measles and congenital rubella syndrome, is an enveloped, single-stranded RNA virus. It is classified as the sole member

Question 109. Which of the following infections presents with features similar to erythroblastosis?

A. Epstein-Barr Virus (EBV)

B. Cytomegalovirus (CMV)

C. Herpes Simplex Virus (HSV)

D. Staphylococcus

Correct answer: B

Erythroblastosis fetalis, or hemolytic disease of the newborn, is a condition where fetal red blood cells are destroyed by maternal antibodies, leading to severe anemia, jaundice, and hydrops fetalis. Congenital Cytomegalovirus (CMV) infection is the congenital infection that most closely resembles severe erythroblastosis fetalis. Like severe Rh disease, congenital CMV can cause hepatosplenomegaly, jaundice (due to both hemolysis and hepatitis), hemolytic anemia, and thrombocytopenia. In its most severe form, it can also lead to hydrops fetalis, which is generalized fetal edema. Because of this significant clinical overlap, congenital CMV infection is an important differential diagnosis for a newborn presenting with signs of severe hemolytic disease. Other features of congenital CMV, such as microcephaly and periventricular calcifications, can help to distinguish it.

Question 110. Which test is used to definitively diagnose neurosyphilis?

A. VDRL

B. RPR

C. TPI

D. FTA-ABS

Correct answer: A

No explanation is available for this recall question yet.

Question 111. Coxsackievirus A16 is commonly linked to which disease?

A. Yellow fever

B. Hand-foot-and-mouth disease

C. Rocky Mountain spotted fever

D. Encephalomyocarditis

Correct answer: B

Hand, foot, and mouth disease (HFMD) is a common and highly contagious viral illness that primarily affects infants and young children. It is characterized by a typical clinical syndrome of fever, oral lesions (painful vesicles and ulcers on the tongue, gums, and inside the cheeks), and a skin rash with vesicles on the palms of the hands, soles of the feet, and sometimes the buttocks. The most common causative agent of HFMD is Coxsackievirus A16. It is a member of the enterovirus genus within the Picornaviridae family. While other enteroviruses, most notably Enterovirus 71, can also cause HFMD (and are often associated with more severe neurological complications), Coxsackievirus A16 is the classic and most frequent etiology. Yellow fever is a flavivirus, and Rocky Mountain spotted fever is a bacterial infection caused by Rickettsia.

Question 112. Pneumocystis jiroveci is :

A. Associated with Cytomegalovirus (CMV) infection

B. Diagnosed by sputum microscopy

C. Seen predominantly in immuno compromised patients

D. Always associated with pneumatocele formation

Correct answer: C

Pneumocystis jirovecii is an atypical fungus that is a major cause of opportunistic infections. The most accurate and defining statement is that clinical disease caused by this organism is seen predominantly in immuno compromised patients. It is the most common opportunistic infection in individuals with advanced HIV/AIDS (when the CD4 count drops below 200 cells/ mm^3), but it also affects other immuno compromised hosts, such as organ transplant recipients and patients on chronic corticosteroid therapy. In these patients, it causes a severe, often fatal, interstitial pneumonia known as Pneumocystis pneumonia (PCP). While co-infection with CMV can occur (A), it is not a defining association. Diagnosis is made by microscopic identification of the organism in respiratory specimens (like BAL fluid), often using special stains, as it cannot be cultured. Pneumatocele formation (D) is a possible but not universal complication.

Question 113. Which of the following statements is NOT true regarding congenital toxoplasmosis?

A. Chorioretinitis

B. Conjunctivitis

C. Hydrocephalus

D. Cerebral calcifications

Correct answer: B

Congenital toxoplasmosis occurs when a pregnant woman acquires a primary infection with the protozoan parasite Toxoplasma gondii and transmits it to the fetus. The infection can cause severe damage to the developing fetal central nervous system and eyes. The classic tetrad of findings in severe congenital toxoplasmosis (Sabin's tetrad) includes :1. Chorioretinitis : This is the most common manifestation, often leading to severe vision loss.2. Hydrocephalus : Obstruction of the aqueduct of Sylvius can lead to an accumulation of CSF.

Question 114. Which statement correctly describes the classic triad seen in congenital rubella syndrome?

A. Patent ductus arteriosus (PDA), cataract, and deafness is seen

B. Hepatosplenomegaly, mental retardation, and deafness

C. Chorioretinitis, multiorgan failure, and pneumonitis

D. None of these

Correct answer: A

Congenital Rubella Syndrome (CRS) is a constellation of birth defects that occurs when a fetus is infected with the rubella virus during the first trimester of pregnancy. The infection can cause severe damage to developing organs. The classic triad of CRS, also known as Gregg's triad, consists of three specific findings :1. Ocular defects : The most common is a dense, nuclear cataract, which can be unilateral or bilateral, and a salt-and-pepper retinopathy.2. Sensorineural deafness : This is the single most common defect seen in CRS and can be profound.3. Congenital heart disease : The most characteristic cardiac malformation is a

Question 115. Flask-shaped ulcers in the intestine are caused by :

A. Giardia lamblia

B. Entamoeba histolytica

C. Helicobacter pylori (H. pylori)

D. E. vermicularis

Correct answer: B

The formation of flask-shaped ulcers is the pathognomonic histological lesion of intestinal amebiasis, which is caused by the protozoan parasite Entamoeba histolytica. The trophozoites of E. histolytica invade the colonic mucosa, typically in the cecum and ascending colon. They secrete proteolytic enzymes that lyse the host tissues, allowing them to penetrate through the epithelium and into the submucosa. The initial entry point through the mucosa is small, but once in the submucosa, the organisms spread out laterally, causing a much wider area of liquefactive necrosis. This creates an ulcer with a narrow neck at the mucosal surface and a

wide, flask-shaped base in the submucosa. This unique morphology is highly characteristic and is the classic finding on a biopsy of an amebic ulcer.

Question 116. Which culture medium is specifically used for isolating Legionella pneumophila?

A. Buffered Charcoal Yeast Extract (BCYE) agar

B. MacConkey agar

C. Baird-Parker agar

D. Sabouraud's dextrose agar

Correct answer: A

Legionella pneumophila, the bacterium that causes Legionnaires' disease, is a fastidious Gram-negative rod. It has specific nutritional requirements and will not grow on standard

Question 117. Which special stain is employed to identify Cryptococcus?

A. Ziehl-Neelsen (ZN) stain

B. Gram stain

C. Mucicarmine stain

D. Malachite green

Correct answer: C

Cryptococcus neoformans is an encapsulated yeast that is a major cause of meningitis in immuno compromised patients. A key and defining feature of this organism is its thick polysaccharide capsule. While a rapid diagnosis can often be made by visualizing this capsule with an India ink stain of the CSF (where the capsule appears as a clear halo around the yeast), a more specific histopathological stain can be used on tissue samples. The Mucicarmine stain is a special stain that has a strong affinity for the mucopolysaccharides that make up the cryptococcal capsule. It stains the capsule a bright rose-red or magenta color, making the organism stand out clearly against the background tissue. This staining reaction is highly characteristic and is considered a definitive method for identifying Cryptococcus in tissue biopsies, such as from the brain or lungs.

Question 118. A 36-year-old man with cough, cold, fever, and rusty sputum tests negative for TB. He recently traveled to China and ate crab. What is the most probable infection?

A. Paragonimus westermani

B. Fasciola hepatica

C. Fasciolopsis buski

D. Entamoeba histolytica

Correct answer: A

This clinical scenario provides several key clues pointing to a specific parasitic infection. The

patient presents with pulmonary symptoms, including a chronic cough and rusty or brownish sputum, which suggests the presence of blood and eggs. The history of travel to an endemic area (China) and the consumption of raw or undercooked freshwater crabs is the definitive epidemiological link. This is the classic mode of transmission for the lung fluke, Paragonimus westermani. Humans become infected by eating crabs or crayfish containing the metacercariae. The larvae excyst, penetrate the intestine, and migrate to the lungs, where they mature into adult flukes and form fibrous capsules. The eggs laid by the adult worms erode into the bronchioles and are coughed up in the sputum, causing the characteristic rusty color.

Question 119. Which microbiological test is used to diagnose Leptospira infection?

A. Cold agglutination

B. Standard agglutination

C. Microscopic agglutination test (MAT)

D. None of these

Correct answer: C

The gold standard serological test for the diagnosis of leptospirosis is the Microscopic Agglutination Test (MAT). This is a complex and reference laboratory test that is considered the most specific method for diagnosing the infection. The MAT involves testing the patient's serum against a panel of live Leptospira serovars that are representative of the local epidemiology. The serum is serially diluted and mixed with the live organisms. If specific antibodies are present in the patient's serum, they will bind to the spirochetes, causing them to agglutinate (clump together) and lose their motility. This agglutination is then observed under a dark-field microscope. A four-fold or greater rise in the antibody titer between acute and convalescent

Question 120. Which of the following functions or findings is reduced in Retinitis Pigmentosa?

A. Arachidonic acid

B. Trielonic acid

C. Thromboxane

D. Docosahexaenoic acid (DHA)

Correct answer: D

Retinitis Pigmentosa (RP) is a group of inherited retinal dystrophies characterized by the progressive loss of photoreceptor cells (rods and cones), leading to night blindness and a gradual constriction of the visual fields. The outer segments of photoreceptor cells are highly specialized structures that are exceptionally rich in the omega-3 long-chain polyunsaturated fatty acid, Docosahexaenoic acid (DHA). DHA is a critical structural component of the photoreceptor membranes and plays a vital role in their function, including phototransduction and cell survival. Studies in patients with various forms of RP have shown that there is often a systemic deficiency or a metabolic defect leading to decreased plasma levels of DHA. While the

exact role is still being investigated, this deficiency is thought to contribute to the progressive photoreceptor degeneration. This has led to clinical trials exploring the potential therapeutic benefit of DHA supplementation in slowing the progression of the disease.

Question 121. What is against-the-rule correction in astigmatism?

A. -1.25 cyl 90

B. -2 spherical 180

C. -3 cyl 180

D. +2 cyl 180

Correct answer: A

Astigmatism is a refractive error where the eye's cornea or lens has different curvatures in different meridians. In against-the-rule (ATR) astigmatism, the horizontal meridian (at 180 degrees) is steeper (has more focusing power) than the vertical meridian (at 90 degrees). To correct this with a spectacle lens, a minus cylinder is used to neutralize the excess power of the steep meridian. The axis of a minus cylinder lens is placed 90 degrees away from the meridian it is intended to correct. Therefore, to correct the steep horizontal (180-degree) meridian in ATR astigmatism, the axis of the minus cylinder must be placed vertically, at or near 90 degrees. A prescription written as -1.25 cyl 90° signifies a minus cylinder with its axis at 90 degrees, which is the correct form for correcting against-the-rule astigmatism. Conversely, a minus cylinder with its axis at 180 degrees would be used to correct with-the-rule astigmatism, where the vertical meridian is steeper.

Question 122. Which medication(s) are administered in the management of acute congestive glaucoma?

A. Atropine

B. Pilocarpine

C. Acetazolamide

D. Both B & C

Correct answer: D

Acute angle-closure glaucoma (acute congestive glaucoma) is an ophthalmologic emergency characterized by a sudden, severe rise in intraocular pressure (IOP). The immediate medical management aims to rapidly lower the IOP using a combination of medications. Key agents include :1. Acetazolamide : A systemic carbonic anhydrase inhibitor that rapidly and powerfully suppresses the production of aqueous humor by the ciliary body, thereby reducing the inflow of fluid into the eye.2. Pilocarpine : A topical miotic (cholinergic agonist) that constricts the pupil. This pupillary constriction pulls the peripheral iris away from the trabecular meshwork, physically opening the blocked drainage angle and increasing aqueous outflow.This combination of decreasing aqueous production (acetazolamide) and increasing aqueous outflow (pilocarpine) is a cornerstone of initial therapy. Topical beta-blockers and alpha-agonists are

also used, along with systemic hyperosmotic agents like mannitol if the IOP is very high. Atropine (A), a mydriatic, is absolutely contraindicated as it would worsen the angle closure.

Question 123. What ocular manifestation is most frequently observed in patients with myasthenia gravis?

A. Ptosis

B. Lagophthalmos

C. Proptosis

D. Enophthalmos

Correct answer: A

Myasthenia Gravis (MG) is an autoimmune disorder characterized by antibody-mediated destruction of acetylcholine receptors at the neuromuscular junction, leading to fluctuating muscle weakness. The ocular muscles are the most frequently affected, and ocular symptoms are the initial presentation in over 50% of patients. The two most common ocular findings are ptosis (drooping of the upper eyelid) and diplopia (double vision). Ptosis in MG is caused by weakness of the levator palpebrae superioris muscle. It is characteristically asymmetric and variable, worsening with fatigue (at the end of the day) and improving with rest. The ptosis can be unilateral or bilateral and may alternate between the eyes. Diplopia is caused by weakness of one or more of the extraocular muscles. The combination of variable, fatigable ptosis and diplopia is highly suggestive of ocular myasthenia. Lagophthalmos (B) is the inability to close the eye, often seen in facial nerve palsy.

Question 124. Esotropia is usually associated with :

A. Myopia

B. Hypermetropia

C. Astigmatism

D. Presbyopia

Correct answer: B

Esotropia, an inward turning of the eyes, is strongly associated with hypermetropia (farsightedness), particularly in children. This specific type of strabismus is known as accommodative esotropia. The underlying mechanism is the physiological link between accommodation (the eye's focusing mechanism) and convergence (the inward movement of the eyes). A person with hypermetropia must constantly accommodate to focus light onto the retina to see clearly, even for distant objects. This accommodative effort is reflexively coupled with a convergence effort. In a child with a significant amount of uncorrected hypermetropia, the excessive and sustained accommodative drive

Question 125. A child presents with ptosis and weak levator muscle function. Which surgical procedure is appropriate in this case?

A. Levator muscle resection

B. Mullerectomy

C. Fasanella Servat surgery

D. Frontalis suspension surgery

Correct answer: D

The choice of surgical procedure to correct congenital ptosis (drooping of the upper eyelid) depends primarily on the function of the levator palpebrae superioris muscle, which is the main muscle responsible for elevating the eyelid. In cases where there is poor levator function (typically defined as less than 4-5 mm of eyelid excursion from downgaze to upgaze), procedures that rely on strengthening the levator muscle itself, such as a levator muscle resection (A), are unlikely to be successful. In these situations, the preferred surgical approach is a frontalis suspension surgery, also known as a frontalis sling. This procedure bypasses the weak levator muscle and couples the movement of the eyelid to the frontalis muscle (the muscle that raises the eyebrows). A sling material (either autologous fascia lata from the thigh or a synthetic material like silicone) is passed from the tarsal plate of the eyelid up to the frontalis muscle. This allows the child to lift their eyelid by raising their eyebrow.

Question 126. Which drug is known to produce ocular hypotension along with apnea in infants?

A. Latanoprost

B. Timolol

C. Brimonidine

D. Dorzolamide

Correct answer: C

Brimonidine is a topical alpha-2 adrenergic agonist used to lower intraocular pressure in the treatment of glaucoma. While it is generally safe in adults, it is absolutely contraindicated in infants and young children (typically under the age of 2). This is because the drug can be absorbed systemically and can cross the immature blood-brain barrier in infants. Stimulation of central alpha-2 receptors in the brainstem leads to profound central nervous system depression. This can manifest as a life-threatening triad of hypotension, bradycardia, and, most seriously, apnea (cessation of breathing) and severe lethargy. Because of this high risk of severe systemic side effects, brimonidine should be avoided in this age group. While topical beta-blockers like timolol (B) can also have systemic side effects (like bradycardia and bronchospasm), the specific combination of apnea and hypotension is most strongly associated with brimonidine.

Question 127. Which combination of chemotherapy drugs is commonly employed in the treatment of retinoblastoma?

A. Vincristine, carboplatin, and etoposide

B. Vinblastine, etoposide, and bleomycin

C. Vinblastine, vincristine, and etoposide

D. Vinblastine, vincristine, and cisplatin

Correct answer: A

The management of retinoblastoma, the most common intraocular malignancy in children, has evolved to prioritize globe salvage and preservation of vision. Systemic chemotherapy is a cornerstone of this approach, used to shrink the tumor before applying focal therapies (like laser or cryotherapy) in a process called chemoreduction. The most widely used and standard chemotherapy regimen for retinoblastoma consists of a three-

Question 128. Which of the following statements correctly describes the Bundle of Kent?

A. Abnormal pathway between two atria

B. It is a muscular or nodal pathway between the atria and ventricle in WPW syndrome

C. It is slower than the AV nodal pathway

D. None

Correct answer: B

The Bundle of Kent is the eponym for the accessory atrioventricular (AV) pathway that is the anatomical substrate for Wolff-Parkinson-White (WPW) syndrome. In a normal heart, the only electrical connection between the atria and the ventricles is through the AV node, which imposes a physiological delay. In WPW syndrome, this abnormal muscular bundle forms an additional electrical bridge that directly connects the atrial and ventricular myocardium, bypassing the AV node. This accessory pathway conducts impulses much faster than the AV node (C is incorrect). This pre-excitation of the ventricles via the Bundle of Kent is what produces the characteristic ECG findings of WPW : a short PR interval and a slurred upstroke of the QRS complex, known as a delta wave. The presence of this bypass tract creates a potential circuit for re-entrant tachycardias, such as atrioventricular reentrant tachycardia (AVRT).

Question 129. A punched-out ulcer in the esophagus is seen in :

A. Herpes

B. CMV

C. Esophagitis

D. Candida

Correct answer: A

The endoscopic appearance of esophageal ulcers can provide important clues to the underlying etiology, especially in immuno compromised patients. Herpes Simplex Virus (HSV) esophagitis is characteristically associated with the formation of multiple, small, well-demarcated, punched-out ulcers. These ulcers

Question 130. Infarction of which region of the myocardium is most commonly associated with the development of a post-MI aneurysm?

A. Subendocardial

B. Anterior transmural

C. Posterior transmural

D. Inferior wall

Correct answer: B

A left ventricular aneurysm is a late complication of a myocardial infarction (MI), where a thinned, scarred, and dyskinetic segment of the ventricular wall bulges outward during systole. This complication is most likely to occur after a large, transmural (full-thickness) MI. The anatomical location most frequently associated with aneurysm formation is the anterior wall and apex of the left ventricle. This region is supplied by the left anterior descending (LAD) artery. A large, transmural anterior wall MI, typically resulting from a proximal LAD occlusion, leads to extensive necrosis of the myocardium in this area. During the healing process, this necrotic muscle is replaced by a thin, non-contractile fibrous scar. The constant intraventricular pressure then causes this weak, scarred area to progressively stretch and bulge outwards, forming a true ventricular aneurysm over weeks to months.

Question 131. Which of the following factors increases the risk of developing Alzheimer’s disease?

A. Klinefelter syndrome

B. Low BP

C. Down's syndrome

D. None

Correct answer: C

Down syndrome (Trisomy 21) is a major and well-established genetic risk factor for the development of early-onset Alzheimer's disease. The gene for the amyloid precursor protein (APP) is located on chromosome 21. Individuals with Down syndrome have three copies of this

Question 132. In Brown-skinned syndrome, which type of sensation is lost on the ipsilateral side of the lesion?

A. Pain

B. Touch

C. Proprioception

D. Temperature

Correct answer: C

Brown-skinned syndrome results from the hemisection (damage to one half) of the spinal cord. This injury leads to a distinct pattern of neurological deficits below the level of the lesion, based on the specific tracts that are damaged.1. Ipsilateral (same side) deficits : The injury damages

the dorsal columns and the corticospinal tract. The dorsal columns (fasciculus gracilis and cuneatus) carry sensory information for fine touch, vibration, and proprioception (joint position sense) without crossing in the spinal cord. Therefore, there is a loss of these sensations on the same side as the lesion. Damage to the corticospinal tract, which has already crossed in the medulla, causes ipsilateral spastic paralysis.2. Contralateral (opposite side) deficits : The injury damages the spinothalamic tract. Since the fibers of this tract (carrying pain and temperature sensation) cross to the opposite side shortly after entering the cord, there is a loss of pain and temperature sensation on the side opposite the lesion.

Question 133. Achondroplasia shows which type of inheritance?

A. X-linked recessive (XLR)

B. X-linked dominant (XLD)

C. Autosomal recessive

D. Autosomal dominant

Correct answer: D

Achondroplasia is the most common form of skeletal dysplasia and disproportionate short stature (dwarfism). It is inherited in an autosomal dominant pattern. The condition is caused by a gain-of-function mutation in the fibroblast growth factor receptor 3 (FGFR3) gene. This mutation leads to a constitutive activation of the receptor, which severely inhibits the proliferation and differentiation of chondrocytes in the growth plates of long bones. This impairs endochondral ossification, resulting in the characteristic features of short limbs, macrocephaly, and frontal bossing. Although it is an autosomal dominant disorder, over 80% of cases of achondroplasia are the result of a de novo (new) mutation occurring in a child of unaffected, average-stature parents. When an individual with achondroplasia has children, they have a 50% chance of passing the condition on to each child.

Question 134. Which of the following is included in the MELD score?

A. Serum creatinine

B. Transaminase

C. Albumin

D. Alkaline phosphatase

Correct answer: A

The Model for End-Stage Liver Disease (MELD) score is a widely used and validated scoring system that accurately predicts the 3-month mortality risk in patients with advanced liver cirrhosis. It is also used by the United Network for Organ Sharing (UNOS) to prioritize patients for liver transplantation. The original MELD score is calculated using a formula that incorporates three objective laboratory values :1. Serum Creatinine : A measure of kidney function, which is often impaired in advanced liver disease (hepatorenal syndrome).2. Serum Total Bilirubin : A measure of the liver's excretory function.3. International Normalized Ratio (INR) : A measure of

the prothrombin time, which reflects the liver's synthetic function (production of clotting factors).

Question 135. Chronic alcohol consumption is most commonly associated with which type of cardiomyopathy?

A. Hypertrophic cardiomyopathy

B. Dilated cardiomyopathy

C. Pericarditis

D. Myocarditis

Correct answer: B

Chronic, heavy alcohol consumption is a major cause of secondary, non-ischemic dilated cardiomyopathy (DCM). This condition is known as alcoholic cardiomyopathy. Alcohol and its metabolites, such as acetaldehyde, have a direct toxic effect on cardiomyocytes (heart muscle cells). This toxicity leads to impaired contractile function, mitochondrial dysfunction, and apoptosis of cardiac muscle cells. Over time, this results in the characteristic features of DCM : dilation of the ventricular chambers (especially the left ventricle), thinning of the ventricular walls, and severely impaired systolic function (reduced ejection fraction). This progressive myocardial dysfunction eventually leads to the clinical syndrome of congestive heart failure. Alcoholic cardiomyopathy is one of the leading causes of reversible DCM, as abstinence from alcohol can lead to a significant improvement in cardiac function in some patients.

Question 136. Which of the following is not related to HIV?

A. Primary CNS lymphoma

B. Tertiary syphilis

C. Oesophageal candidasis

D. None

Correct answer: B

HIV is associated with a wide range of opportunistic infections and malignancies due to progressive immunosuppression.1. Primary CNS lymphoma is strongly associated with advanced HIV infection, particularly in patients with very low CD4 counts. It is considered an AIDS-defining illness.2. Oesophageal candidiasis is also a classic opportunistic infection seen in HIV patients

Question 137. What are the key major blood-culture criteria used to diagnose infective endocarditis?

A. Single positive culture of HACEK

B. Single positive culture of Coxiella

C. Single positive culture of Corynebacterium

D. Both a & b

Correct answer: D

Infective endocarditis is diagnosed using the Modified Duke Criteria, which include major and minor criteria. Major blood-culture criteria are crucial for diagnosis.One major criterion is positive blood cultures for typical organisms known to cause infective endocarditis. These include the HACEK group organisms (Haemophilus, Aggregatibacter, Cardiobacterium, Eikenella, Kingella). Although diagnosis usually requires two separate positive cultures, HACEK organisms are considered typical pathogens and form part of the major microbiological criteria.Another major criterion is a single positive blood culture for Coxiella burnetii or a high phase I IgG antibody titer. Coxiella is highly specific for infective endocarditis, so even a single positive culture qualifies as a major criterion.Corynebacterium species are not typically included among the classic major organisms unless repeatedly isolated.Thus, both HACEK organisms and Coxiella burnetii are included under major blood-culture criteria in diagnostic guidelines. Therefore, the correct answer is : (D) Both a & b

Question 138. Which cardiovascular abnormality is most typically associated with congenital rubella syndrome?

A. Pulmonary artery stenosis

B. Coarctation of aorta

C. Ankylosing spondylitis

D. Rheumatic fever

Correct answer: A

Congenital Rubella Syndrome (CRS) is known for its classic triad of defects : sensorineural deafness, cataracts, and congenital heart disease. While Patent Ductus Arteriosus (PDA) is the most common cardiac lesion, peripheral pulmonary artery stenosis is also a very characteristic and frequent finding, often occurring in combination with PDA. The rubella virus has a direct teratogenic effect on the developing cardiovascular system, leading to hypoplasia and stenosis of the main pulmonary artery and its branches. This combination of PDA and pulmonary artery stenosis is highly suggestive of CRS. Coarctation of the aorta (B) is more commonly associated with Turner syndrome. Ankylosing spondylitis (C) and Rheumatic fever (D) are acquired conditions, not congenital defects.Note : While PDA is the single most common defect, pulmonary artery stenosis is also highly characteristic and is a correct answer among the choices.

Question 139. Osborn J waves are seen in :

A. Hypothermia

B. Hyperkalemia

C. Hypocalcemia

D. Hypokalemia

Correct answer: A

The Osborn wave, also known as the J wave, is a distinctive electrocardiogram (ECG) finding that is considered pathognomonic for hypothermia. It appears as a slow, positive deflection at the J-point, which is the junction between the end of the QRS complex and the beginning of the ST segment. This gives the J-point a humped or dome-like appearance. The amplitude of the Osborn wave is generally proportional to the degree of hypothermia, becoming more prominent as the core body temperature falls below 32°C (90°F). While J waves can occasionally be seen in other conditions such as hypercalcemia or early repolarization, their classic and most significant association is with hypothermia. The other electrolyte disturbances

Question 140. Which murmur increases in intensity on standing?

A. HOCM (Hypertrophic Obstructive Cardiomyopathy)

B. MR (Mitral Regurgitation)

C. MS (Mitral Stenosis)

D. VSD (Ventricular Septal Defect)

Correct answer: A

The murmur of Hypertrophic Obstructive Cardiomyopathy (HOCM) is unique in its response to physiological maneuvers. The murmur is caused by a dynamic obstruction of the left ventricular outflow tract (LVOT) due to septal hypertrophy and systolic anterior motion (SAM) of the mitral valve. Any maneuver that decreases venous return (preload) or decreases systemic vascular resistance (afterload) will make the left ventricular cavity smaller,

Question 141. In a patient with mitral stenosis, which cardiac chamber shows enlargement on a barium swallow?

A. Left atrium

B. Right atrium

C. Left ventricle

D. Right ventricle

Correct answer: A

In mitral stenosis, the mitral valve orifice is narrowed, creating an obstruction to blood flow from the left atrium to the left ventricle. This obstruction causes a pressure overload in the left atrium, which leads to its progressive dilation and enlargement over time. The esophagus is located in the posterior mediastinum, immediately behind the left atrium. As the left atrium enlarges posteriorly, it can impinge upon and displace the anterior wall of the esophagus. This effect can be visualized on a barium swallow examination. The characteristic finding is a smooth, posterior indentation on the barium-filled esophagus at the level of the left atrium. This sign, while not as commonly used for diagnosis today with the advent of echocardiography, is a classic radiological feature demonstrating the posterior enlargement of the

Question 142. In a triage system, what does the green category indicate?

A. Low priority

B. Morbidity

C. Ambulatory

D. High priority

Correct answer: C

In a triage system used during disasters or mass casualty incidents, patients are categorized based on the severity of their condition and urgency of treatment. The color coding helps prioritize care efficiently.The green category represents patients with minor injuries who are stable and able to walk. These individuals are often referred to as the “walking wounded.” Because they can move on their own and do not require immediate life-saving intervention, they are considered ambulatory.Typical triage color categories include:1. Red – Immediate (life-threatening but treatable conditions)2. Yellow – Delayed (serious but not immediately life-threatening)3. Green – Minor (ambulatory, walking wounded)4. Black – Dead or expectant (unsurvivable injuries)Although green-tagged patients are low priority compared to red or yellow, the most accurate and specific description among the options given is ambulatory.Therefore, the correct answer is : (C) Ambulatory

Question 143. Which of the following is not considered a dietary fiber?

A. Pectin

B. Lignin

C. Cellulose

D. Gums

Correct answer: B

While all the options are considered components of dietary fiber, lignin is the exception due to its chemical structure.Dietary fiber is the indigestible portion of plant-based foods. Pectin, cellulose, and gums are all polysaccharides, meaning they are complex carbohydrates made from long chains of sugar molecules. Cellulose provides structure to plant cell walls, while pectins and gums are often found in fruits and seeds.In contrast, lignin is not a carbohydrate. It is a complex organic polymer built from aromatic alcohols, which gives rigidity to the woody parts of plants. Because it is a polyphenol polymer rather than a polysaccharide, lignin is the chemical outlier in this group. Therefore, it is the correct exception among the choices provided.

Question 144. The cross-product ratio (odds ratio) is calculated in which type of study?

A. Case-control

B. Cohort

C. Cross-sectional

D. Randomized Controlled Trial (RCT)

Correct answer: A

The odds ratio (OR) is the primary measure of association used in a case-control study. A case-control study is a retrospective study design where individuals with a disease (cases) are compared to individuals without the disease (controls) with respect to their past exposure to a potential risk factor. Because this study design does not start with a disease-free population and follow them over time, it is not possible to directly calculate the incidence or the relative risk. Instead, we calculate the odds of exposure among the cases and compare it to the odds of exposure among the controls. The ratio of these two odds is the odds ratio, which is also known as the cross-product ratio because it can be easily calculated from a 2x2 table as (ad)/(bc). The odds ratio serves as an estimate of the relative risk, particularly when the disease is rare.

Question 145. In a normal distribution, what proportion of values lies within one standard deviation of the mean?

A. 50%

B. 68%

C. 95%

D. 100%

Correct answer: B

The normal distribution is a symmetrical, bell-shaped curve that is a fundamental concept in statistics. The empirical rule, or the 68-95-99.7 rule, describes the proportion of data that falls within specific ranges of standard deviations (SD) from the mean (μ) in a normal distribution. According to this rule : Approximately 68% of the data points lie within one standard deviation of the mean (i.e., in the range μ ± 1 SD).Approximately 95% of the data points lie within two standard deviations of the mean (μ ± 2 SD).Approximately 99.7% of the data points lie within three standard deviations of the mean (μ ± 3 SD).This predictable distribution of data is a key property of the normal curve and is widely used

Question 146. Which of the following subjects falls under the Concurrent List of the Indian Constitution?

A. International immigration rule for quarantine

B. Prevention of extension of communicable disease from one unit to another

C. Mines and oilfield workers rules

D. Establishment and maintenance of drug standards

Correct answer: D

Under the Constitution of India, legislative powers are divided into three lists in the Seventh Schedule: the Union List, State List, and Concurrent List. Subjects in the Concurrent List can be legislated upon by both the Central and State governments. In case of conflict, Central law prevails.The establishment and maintenance of standards of drugs and poisons is included in the Concurrent List (List III). This allows both Parliament and State Legislatures to frame laws

regarding drug quality, safety, and regulation. An example is the Drugs and Cosmetics Act, which sets standards applicable across India while allowing state-level enforcement.The other options fall under the Union List:1. International immigration and quarantine involve national borders.2. Prevention of spread of communicable diseases between states concerns inter-state matters.3. Regulation of mines and oilfields is a central subject.Therefore, among the given options, the subject that falls under the Concurrent List is : (D) Establishment and maintenance of drug standards.

Question 147. At which administrative level is the Reproductive and Child Health (RCH) Programme implemented up to its final point?

A. Sub-centre

B. Anganwadi

C. District

D. Taluka

Correct answer: A

The Reproductive and Child Health (RCH) Programme, now integrated under the National Health Mission (NHM), is the flagship program for delivering maternal and child health services in India. The delivery of these services is structured through a tiered public health system. The most peripheral, first-contact point between the community and the formal health system is the Sub-centre. A Sub-centre is staffed by a female health worker (ANM) and a male health worker (MPW-M) and serves a population of 3,000 to 5,000 people. It is at this grassroots level that the core services of the RCH program are delivered, including antenatal care, immunization, basic delivery services, and family planning counseling. The Anganwadi (B) is part of the ICDS scheme and focuses on nutrition and pre-school education, working in coordination with the Sub-centre. The other levels are for supervision and referral.

Question 148. Which health facility located in remote areas is responsible for planning and managing healthcare programmes?

A. Anganwadi

B. Block centre

C. Sub-centre

D. Primary Health Centre (PHC)

Correct answer: D

While the Sub-centre is the most peripheral point of contact for service delivery, the responsibility for planning and managing healthcare for a defined rural population lies at the level of the Primary Health Centre (PHC). The PHC is the cornerstone of the rural healthcare infrastructure in India. It is the first point of contact between the village community and a medical officer. A PHC serves as the hub for a group of Sub-centres (typically six) and is responsible for providing integrated curative, preventive, and promotive healthcare to its

designated population (around 30,000 in plain areas). The medical officer at the PHC is responsible for the overall supervision, implementation, monitoring, and management of all national health programs and schemes within their area.

Question 149. The diagnostic power of a test to correctly diagnose a disease is :

A. Negative predictive value

B. Positive predictive value

C. Sensitivity

D. Specificity

Correct answer: C

The question asks about the ability of a test to correctly diagnose a disease, which means correctly identifying those who have the disease. This is the definition of sensitivity. Sensitivity, also known as the true positive rate, is the proportion of actual positives who are correctly identified as such. It is calculated as : Sensitivity = (True Positives) / (True Positives + False Negatives). A highly sensitive test is very good at ruling out a disease, because if the test result is negative, it is very unlikely that the person actually has the disease (as there are very few false negatives). Specificity (D) is the ability to correctly identify those who do not have the

Question 150. Which of the following best describes paradoxical carriers?

A. A person who acquires the microorganism due to contact with a patient.

B. A person who is clinically recovered from an infectious disease but is still capable of transmitting the infectious agent to others.

C. A person who acquires the microorganism from another carrier.

D. None of the above

Correct answer: B

A paradoxical carrier refers to a person who has clinically recovered from an infectious disease but continues to shed the organism and transmit infection to others.This situation is considered “paradoxical” because the individual appears healthy and recovered, yet still serves as a source of infection.For example:1. A person who has recovered from typhoid fever but continues to excrete Salmonella typhi in stool.2. Such individuals may unknowingly spread infection despite absence of symptoms.In epidemiology, carriers are classified as:1. Incubatory carriers2. Convalescent carriers3. Healthy carriers4. Chronic carriersSome texts group paradoxical carriers under convalescent carriers, describing them as individuals who, paradoxically, remain infectious after apparent recovery.

Question 151. What is the recommended oral vitamin A dose for a 2-year-old child weighing 12 kg with vitamin A deficiency?

A. 50,000 I.U

B. 1 lakh I.U.

C. 1.5 lakh I.U

D. 2 lakh I.U

Correct answer: D

The treatment of Vitamin A deficiency (VAD) with clinical signs (xerophthalmia) involves the administration of high doses of oral Vitamin A. The World Health Organization (WHO) has established a standardized treatment schedule based on age. For any child aged 12 months or older, the recommended treatment dose is 200,000 International Units (IU) of oral Vitamin A (which is equivalent to 2 lakh IU). This dose should be given immediately on diagnosis (Day 1), repeated on the following day (Day 2), and a third dose should be given at least 2 weeks later (Day 14). For infants aged 6-11 months, the dose is 100,000 IU (1 lakh IU). For infants younger than 6 months, the dose is 50,000 IU. Since this child is 2 years old, the correct dose is 200,000 IU.

Question 152. Which of the following items is not classified as personal protective equipment (PPE)?

A. Goggles

B. Face shield

C. Gloves

D. Lab coat

Correct answer: D

Personal Protective Equipment (PPE) refers to specialized clothing or equipment worn by an individual to protect them against specific infectious, chemical, or physical hazards. The purpose of PPE is to create a barrier between the user and the potential hazard. Gloves, goggles, and face shields are all classic examples of PPE used in healthcare to protect against splashes of blood and body fluids. In contrast, a standard lab coat or hospital scrubs are generally considered part of the work uniform and are not classified as PPE. While they provide some minimal

Question 153. A confounding factor is defined as :

A. A factor associated with both the exposure and the disease and is distributed unequally in study and control groups.

B. A factor associated with exposure only and is distributed unequally in study and control groups.

C. A factor associated with both the exposure and the disease and is distributed equally in study and control groups.

D. A factor associated with the disease and is distributed equally in study and control groups

Correct answer: A

A confounding factor (or confounder) is a third variable in an epidemiological study that can distort the true relationship between an exposure and an outcome. For a variable to be a

confounder, it must meet three specific criteria :1. It must be a risk factor for the disease (outcome) among the unexposed.2. It must be associated with the exposure being studied in the source population.3. It must not be an intermediate step in the causal pathway between the exposure and the disease.When a study is conducted, if this confounding factor is distributed unequally between the exposed (study) and unexposed (control) groups, it can create a spurious association or mask a true one. For example, in a study of alcohol and lung cancer, smoking is a confounder because it is associated with alcohol use, is an independent risk factor for lung cancer, and its prevalence differs between drinkers and non-drinkers.

Question 154. What is the likelihood of genetic disorders occurring in a first-cousin consanguineous marriage?

A. 1-2%

B. 4-8%

C. 8-10%

D. 12-14%

Correct answer: B

Consanguineous marriage, or marriage between close biological relatives, increases the risk of having offspring with autosomal recessive genetic disorders. This is because close relatives are more likely to share the same deleterious recessive alleles inherited from a common ancestor. First cousins share, on average, 1/8th of their genes. The background risk for a major congenital anomaly in the general population is about 2-3%. Consanguineous marriage approximately doubles this baseline risk. For a first-cousin marriage, the additional risk of having a child with a significant congenital or genetic disorder (primarily autosomal recessive conditions) is estimated to be around 3-5%. Therefore, the total absolute risk for an offspring of a first-cousin union is in the range of 4% to 8%. This increased risk is a key consideration in genetic counseling for consanguineous couples.

Question 155. Which of the following does not qualify as an epidemiological indicator?

A. ABER

B. Annual parasite index

C. Annual falciparum incidence

D. None of the above

Correct answer: D

All of the options listed are important epidemiological indicators used specifically in the context of malaria surveillance and control programs.Annual Blood Examination Rate (ABER) : This is an operational indicator that measures the surveillance effort. It is the percentage of the population at risk whose blood smears have been collected and examined for malaria in a year.Annual Parasite Incidence (API) : This is a key measure of malaria morbidity. It is the

number of confirmed new cases of malaria per 1,000 population at risk per year.Annual Falciparum Incidence (AFI) : This is a more specific version of the API, looking only at the incidence of the more dangerous Plasmodium falciparum malaria.Since all three are valid and widely used epidemiological indicators in the field of malariology, the correct answer is that none of them are not epidemiological indicators.

Question 156. Which healthcare facility located in the most remote areas is responsible for planning and managing various health schemes?

A. Anganwadi

B. Block centre

C. Sub-centre

D. Primary Health Centre (PHC)

Correct answer: D

In the tiered structure of India's rural public healthcare system, the Primary Health Centre (PHC) serves as the central hub for a defined geographical area (a Community Development Block). It is the first level of the health system to be headed by a qualified medical officer. While the Sub-centre is the most peripheral point of service delivery, the PHC is the unit responsible for the overall planning, implementation, supervision, and management of all national health programs and schemes within its jurisdiction. The medical officer of the PHC and

Question 157. What is the dose of diphtheria antitoxin?

A. 1000 to 5000 IU

B. 10,000 to 1,00,000 IU

C. 1000 to 2000 IU

D. None

Correct answer: B

The administration of Diphtheria Antitoxin (DAT) is a critical, life-saving intervention for the treatment of clinical diphtheria. Its purpose is to neutralize the circulating diphtheria toxin before it can bind to and damage host cells, particularly in the heart and nervous system. The dose of DAT is not based on the patient's weight but is determined by the clinical severity and duration of the illness. The recommended doses are as follows :For pharyngeal or laryngeal disease of less than 48 hours duration : 20,000 to 40,000 units.For nasopharyngeal disease : 40,000 to 60,000 units.For extensive disease of more than 3 days duration or with significant swelling (bull neck) : 80,000 to 120,000 units.Therefore, the therapeutic dose range falls within 10,000 to 100,000 IU (or even higher), making option B the correct range. The antitoxin should be administered as soon as the clinical diagnosis is suspected, without waiting for laboratory confirmation.

Question 158. Vertical transmission of HIV is highest with :

A. Elective cesarean section

B. High viral RNA load

C. Breast feeding

D. Term delivery

Correct answer: B

Vertical transmission (or mother-to-child transmission) of HIV can occur during pregnancy, labor and delivery, or through breast feeding. The single most important determinant

Question 159. The Paired t-test is defined as :

A. A test used to assess quantitative observations before and after an intervention

B. A test that is used when the observations are in the form of proportions (for qualitative data)

C. A test applied when separate observations are made on individuals of two separate groups, and these need to be compared

D. None

Correct answer: A

A paired t-test is a statistical test used to determine if there is a significant difference between the means of two related or paired groups. The classic application of a paired t-test is in a before-and-after study design. In this design, a quantitative measurement (like blood pressure or cholesterol level) is taken on the same group of individuals before an intervention, and then the same measurement is taken again on the same individuals after the intervention. The test then analyzes the mean of the differences between the paired measurements for each

Question 160. What is the most appropriate method to display disease incidence over time?

A. Histogram

B. Line diagram

C. Scattered diagram

D. Bar diagram

Correct answer: B

The best graphical method for representing a trend or the change in a continuous variable over time is a line diagram (or line graph). To represent the incidence of a disease over time, the time periods (e.g., years, months, weeks) are plotted on the x-axis, and the corresponding incidence rates are plotted on the y-axis. The data points are then connected by a line. This visual representation makes it very easy to see the trend in the disease's occurrence—whether it is increasing, decreasing, or showing cyclical patterns over the specified period. A histogram (A) is used to display the frequency distribution of a single continuous variable. A bar diagram (D) is used to compare frequencies or means of different categorical groups. A scatter diagram (C) is used to show the relationship between two different continuous variables.

Question 161. For a trench-type sanitary landfill, how much land is needed for a 2-meter-deep trench to serve a population of 10,000?

A. 1 acre

B. 2 acre

C. 3 acre

D. 4 acre

Correct answer: A

In a trench-type sanitary landfill, waste is placed into excavated trenches and compacted. The land requirement depends on population size, waste generation rate, depth of trench, and compaction.For estimation in community medicine and public health exams, a commonly used

Question 162. What is the most frequent location where a branchial cyst is found?

A. Posterior border of sternocleidomastoid

B. Anterior border of sternocleidomastoid

C. Digastric muscle

D. Omohyoid muscle

Correct answer: B

A branchial cleft cyst is a congenital anomaly that arises from the failure of obliteration of a pharyngeal (branchial) cleft during embryonic development, most commonly the second branchial cleft. Clinically, it presents as a smooth, painless, fluctuant mass in the neck, usually appearing in late childhood or early adulthood when it becomes secondarily infected or filled with fluid. The most common and characteristic location for a second branchial cleft cyst is in the lateral aspect of the neck, deep to the platysma muscle, and along the anterior border of the upper third of the sternocleidomastoid muscle. The cyst is often located near the angle of the mandible. Its deep extension typically passes between the internal and external carotid arteries to end in the tonsillar fossa. This specific location is a key diagnostic feature.

Question 163. Inspiratory stridor is most commonly associated with which type of lesion?

A. Supraglottic

B. Subglottic

C. Tracheal

D. Bronchus

Correct answer: A

Stridor is a high-pitched, harsh sound produced by turbulent airflow through a partially obstructed airway. The character of the stridor can help to localize the level of the obstruction. Inspiratory stridor is characteristic of an extrathoracic airway obstruction, specifically at or above the level of the vocal cords (the glottis). Lesions in the supraglottic region, such as epiglottitis or laryngomalacia, are classic causes. During inspiration, the negative pressure

generated in the airway tends to collapse the floppy supraglottic tissues inward, causing the obstruction and the characteristic inspiratory sound. In contrast, an intrathoracic obstruction (e.g., in the trachea or bronchus) typically causes expiratory stridor or wheezing, as the airway narrows during the positive pressure of expiration. A fixed obstruction, such as subglottic stenosis, often causes biphasic stridor (heard during both inspiration and expiration).

Question 164. The CEAP score is used to indicate which of the following?

A. Arterial disorders

B. Venous disorders

C. Neurological disorders

D. Trauma disorders

Correct answer: B

The CEAP classification is used to evaluate and categorize chronic venous disorders.CEAP stands for:C – Clinical classificationE – EtiologyA – AnatomyP – PathophysiologyIt is primarily applied in patients with chronic venous insufficiency, varicose veins, venous ulcers, and other venous abnormalities.Clinical classification ranges from:C0 – No visible signsC1 – Telangiectasia or reticular veinsC2 – Varicose veinsC3 – EdemaC4 – Skin changes (pigmentation, eczema)C5 – Healed venous ulcerC6 – Active venous ulcerThe CEAP system helps guide diagnosis, treatment planning, and prognosis in venous disease. It is not used for arterial, neurological, or trauma-related conditions.Therefore, the correct answer is : (B) Venous disorders

Question 165. A parotid mass with mixed consistency is most likely due to which of the followlng?

A. Pleomorphic adenoma

B. Sebaceous ryst

C. Dermoid cyst

D. All

Correct answer: A

Pleomorphic adenoma is the most common tumor of the parotid gland and is classically associated with a mixed consistency on palpation. It is also known as a “benign mixed tumor” because it contains both epithelial and myoepithelial components along with a mesenchymal-like stromal component.The stromal element may be myxoid, cartilaginous (chondroid), or fibrous in nature. This combination of different tissue types gives the tumor areas that feel firm in some regions and softer in others, resulting in a heterogeneous or mixed consistency. Clinically, it presents as a slow-growing, painless, well-defined parotid swelling, most commonly in adults.Sebaceous cysts are usually superficial, fluctuant, and not true parotid gland tumors. Dermoid cysts are typically soft, cystic swellings seen in midline locations and are uncommon in the parotid region.Thus, a parotid mass with mixed consistency is most characteristic of pleomorphic adenoma.

Question 166. Which of the following is true about the treatment of early breast carciroma?

A. Aromatase inhibitors are replacing tamoxifen in premenopausal women

B. Post-mastectomy radiation therapy is given when 4 or more lymph nodes are positive

C. Tamoxifen is not useful in post-menopausal women

D. In premenopausal women, multidrug chemotherapy is given in selected patients

Correct answer: B

Breast cancer treatment in early-stage disease depends on tumor size, lymph node involvement, hormone receptor status, and menopausal state.Post-mastectomy radiation therapy (PMRT) is recommended when four or more axillary lymph nodes are positive, as this significantly reduces the risk of local recurrence and improves overall

Question 167. Which of the following statements about deep venous thrombosis (DW) is incorrect?

A. Clinical assessment is highly reliable

B. Mostly bilateral

C. Most common clinical presentation is pain and tenderness in the calf

D. Some cases may directly present as pulmonary thromboembolism

Correct answer: B

Deep vein thrombosis (DVT) typically involves thrombus formation in the deep veins of the lower limbs.Option (B) Mostly bilateral is incorrect because DVT is most commonly unilateral, usually affecting one leg. Bilateral DVT can occur but is less common and often associated with extensive or central venous thrombosis.Explanation of other options:(A) Clinical assessment is highly reliable – Although clinical signs alone are not sufficient for definitive diagnosis, structured clinical assessment tools (like the Wells score) are useful for estimating pre-test probability.(C) Most common clinical presentation is pain and tenderness in the calf – This is true. Calf pain, tenderness, swelling, and warmth are typical features.(D) Some cases may directly present as pulmonary thromboembolism – True. In some patients, the first manifestation of DVT is a pulmonary embolism.Thus, the incorrect statement is : (B) Mostly bilateral

Question 168. The most common type of gallstone is :

A. Mixed stones

B. Pure cholesterol stones

C. Pigment stones

D. Calcium bilirubinate

Correct answer: B

Gallstones are classified into three main types: cholesterol stones, pigment stones, and mixed stones. The most common type worldwide is cholesterol stones, particularly in Western

populations. These stones are primarily composed of cholesterol monohydrate crystals and form when bile becomes supersaturated with cholesterol. Factors that predispose to cholesterol stone formation include obesity, female sex, multiparity, advancing age, rapid weight loss, and estrogen exposure.Pure cholesterol stones are typically yellowish and radiolucent on X-ray. Although mixed stones (containing cholesterol along with calcium salts and bile pigments) are also common, they are generally considered variants of cholesterol stones.Pigment stones (including calcium bilirubinate stones) are more common in patients with chronic hemolysis, biliary infection, or cirrhosis and are less common overall compared to cholesterol stones.

Question 169. Serpiginous ulcers in the distal esophagus are most commonly associated with which condition?

A. CMV (Cytomegalovirus)

B. Herpes

C. Pill

D. Corrosive

Correct answer: A

No explanation is available for this recall question yet.

Question 170. What is the most frequent reason for performing liver transplantation in pediatric patients?

A. Biliary atresia

B. Cirrhosis

C. Hepatitis

D. Drug reactions

Correct answer: A

The indications for liver transplantation in children differ from those in adults. In the pediatric population, the single most common indication for liver transplantation worldwide is biliary atresia. Biliary atresia is a rare neonatal liver disease characterized by the progressive, idiopathic fibrotic obliteration of the extrahepatic bile ducts. This leads to a complete obstruction of bile flow, resulting in cholestatic jaundice, cirrhosis, and ultimately end-stage liver failure. While the initial surgical management is a Kasai portoenterostomy to attempt to restore bile flow, this procedure is not curative for many patients. The progressive liver damage and development of portal hypertension often continue, and liver transplantation is ultimately required for long-term survival. Biliary atresia accounts for approximately half of all pediatric liver transplants.

Question 171. Omphalocele is caused by :

A. Duplications of intestinal loops

B. Abnormal rotation of the intestinal loop

C. Failure of gut to return to the body cavity from its physiological herniation

D. Reversed rotation of the intestinal loop

Correct answer: C

An omphalocele is a congenital ventral abdominal wall defect characterized by the herniation of abdominal viscera through the umbilical ring. The herniated organs are covered by a protective sac composed of the amnion, Wharton's jelly, and the peritoneum. The underlying embryological cause of an omphalocele is the failure of the midgut to return to the abdominal cavity after its normal physiological herniation. During early fetal development (around the 6th week of gestation), the midgut grows rapidly and herniates out into the umbilical cord. This is a normal process. The gut then rotates and should return completely to the abdominal cavity by the 10th-12th week. An omphalocele occurs when this return fails to happen, leaving some of the abdominal organs (most commonly the liver and intestines) outside the abdominal cavity, contained within the umbilical cord sac.

Question 172. The Dohlman procedure is used for :

A. Meckel's diverticulum

B. Zenker's diverticulum

C. Dermatomyositis

D. Menetrier's disease

Correct answer: B

The Dohlman procedure is a minimally invasive, endoscopic surgical technique used for the treatment of a Zenker's diverticulum. A Zenker's diverticulum is a pulsion diverticulum of the hypopharynx that arises through a weak spot in the posterior pharyngeal wall (Killian's triangle), just above the cricopharyngeus muscle. The underlying cause is believed to be cricopharyngeal spasm or dysfunction. The Dohlman procedure, or endoscopic diverticulotomy, involves introducing a rigid or flexible endoscope into the pharynx. The common wall (or septum) that separates the diverticulum from the esophagus is then

Question 173. Bell’s palsy is caused by a lesion involving which cranial nerve?

A. 11th cranial nerve

B. 7th cranial nerve

C. 9th cranial nerve

D. 3rd cranial nerve

Correct answer: B

Bell's palsy is the most common cause of acute, unilateral facial paralysis. It is an idiopathic, lower motor neuron paralysis of the seventh cranial nerve (the facial nerve). The facial nerve controls the muscles of facial expression on one side of the face. In Bell's palsy, inflammation and swelling of the nerve as it passes through its narrow bony canal in the temporal bone (the facial canal) leads to nerve compression and dysfunction. This results in the sudden onset of

unilateral weakness or paralysis of all the muscles of facial expression. Clinical features include an inability to raise the eyebrow, inability to close the eye completely (lagophthalmos), drooping

Question 174. Cushing's ulcer is seen in cases of :

A. Burns

B. Head injury

C. Cell necrosis

D. Stress

Correct answer: B

A Cushing's ulcer is a specific type of acute stress ulcer that occurs in the stomach or duodenum of patients who have sustained a severe intracranial injury, such as a traumatic head injury, brain tumor, or intracranial hemorrhage. The pathophysiology is thought to be related to direct stimulation of the vagal nuclei in the brainstem due to increased intracranial pressure. This vagal stimulation leads to hypersecretion of gastric acid (hyperchlorhydria), which then overwhelms the protective mucosal defenses and causes deep, often perforating ulcers. These ulcers are typically single and are most common in the stomach, duodenum, or esophagus. This is in contrast to a Curling's ulcer, which is another type of stress ulcer that is seen in patients with severe burns (A) and is caused by hypovolemia and mucosal ischemia.

Question 175. A gasless abdomen is seen in :

A. Ulcerative colitis

B. Acute pancreatitis

C. Intussusception

D. Necrotizing enterocolitis

Correct answer: B

While a gasless abdomen on a plain radiograph is a non-specific finding, it can be a sign of several pathologies. One of the conditions where it can be seen is severe acute pancreatitis. In this condition, the intense inflammation can lead to a reflex paralytic ileus, where peristalsis of the stomach and small bowel ceases. Additionally, persistent vomiting can empty the stomach and proximal bowel of their gas content. The combination of these factors can result in a radiograph showing a featureless,

Question 176. What is the first-line treatment of mastitis in a lactating mother?

A. Cloxacillin

B. Cefazolin

C. Ceftriaxone

D. Ampicillin

Correct answer: A

Lactational mastitis is an infection of the breast tissue that commonly occurs in breastfeeding women, usually within the first few weeks postpartum. The most frequent causative organism is Staphylococcus aureus, which enters through cracks or fissures in the nipple.Cloxacillin is a penicillinase-resistant penicillin and is considered the first-line treatment for uncomplicated lactational mastitis. It is effective against penicillinase-producing Staphylococcus aureus, the most common pathogen involved. The typical course is 10–14 days, along with continued breastfeeding or milk expression to prevent milk stasis. Supportive measures such as warm compresses, adequate hydration, and analgesics are also recommended.Cefazolin is usually reserved for intravenous use in severe cases. Ceftriaxone is a broad-spectrum antibiotic and not routinely required. Ampicillin is not reliable against penicillinase-producing staphylococci.Thus, for a lactating mother with mastitis, the first-line treatment is cloxacillin.

Question 177. Which of the following is not a bourdary of the calot's triangle ?

A. Common hepatic duct

B. Cystic duct

C. Inferior surface of the liver

D. Gall bladder

Correct answer: D

Calot’s triangle (also called the cystohepatic triangle) is an important anatomical landmark in hepatobiliary surgery, especially during cholecystectomy.The classical boundaries of Calot’s triangle are:1. Medial – Common hepatic duct2. Inferior (lateral) – Cystic duct3. Superior – Inferior surface of the liverThe cystic artery usually passes through this triangle, making it a key structure to identify during surgery to avoid bile duct injury.The gallbladder itself is not a boundary of Calot’s triangle. Although it is anatomically related to the region, it does not form one of the defined borders of the triangle.Therefore, among the given options, the structure that is not a boundary of Calot’s triangle is : (D) Gall bladder

Question 178. When a mother donates a kidney to her son, this type of transplant is referred to as what?

A. Isograft

B. Allograft

C. Autograft

D. Xenograft

Correct answer: B

Transplants are classified based on the genetic relationship between the donor and the recipient. An allograft, or allogeneic transplant, is the transplantation of cells, tissues, or organs between two genetically non-identical individuals of the same species. A kidney transplant from a mother to her son falls into this category. Since the mother and son are not genetically identical (the son inherits half of his genes from his mother and half from his father), their

human leukocyte antigens (HLA) will be different. This genetic disparity means the son's immune system will recognize the mother's kidney as foreign and will mount an immune response to reject it. Therefore, allograft transplantation requires lifelong immunosuppressive medication to prevent rejection. An isograft (A) is between identical twins. An autograft (C) is tissue from the same individual. A xenograft (D) is a transplant between different species.

Question 179. Which of the following statements about Barrett’s esophagus is not correct?

A. Causes adenocarcinoma

B. Peptic ulcer

C. Paraesophageal hernia

D. Metaplasia

Correct answer: C

Barrett's esophagus is a condition where the normal stratified squamous epithelium of the distal esophagus is replaced by a specialized columnar epithelium containing goblet cells. This is an example of metaplasia (D), which occurs as a protective adaptation to chronic injury from gastroesophageal reflux disease (GERD). This metaplastic tissue is prone to developing complications. It can become eroded by acid, leading to the formation of a Barrett's ulcer, a type of peptic ulcer (B). Most importantly, Barrett's esophagus is the single most important risk factor for the development of esophageal adenocarcinoma (A); the metaplastic tissue can progress through stages of dysplasia to invasive cancer. In contrast, a paraesophageal hernia is a type of hiatal hernia where a portion of the gastric fundus herniates into the chest alongside the esophagus. While sliding hiatal hernias are strongly associated with GERD and therefore Barrett's, a paraesophageal hernia is a different anatomical entity and is not a direct feature or consequence of Barrett's esophagus itself.

Question 180. At what age does a child typically develop a bidextrous grip (using both hands to hold an object)?

A. 4 months

B. 5 months

C. 6 months

D. 7 months

Correct answer: A

A bidextrous grip refers to the ability of an infant to use both hands together to hold or manipulate an object. This milestone represents an important stage in the development of motor coordination and hand-eye coordination during early infancy. As the nervous system matures and muscle control improves, infants gradually begin to coordinate movements of both hands.Around the age of 4 months, most infants start showing the ability to grasp objects using both hands simultaneously. At this stage,

Question 181. According to WHO criteria, how is severe acute malnutrition (SAM) defined?

A. Weight for age less than median plus -2 SD

B. Weight for height less than median plus 2 SD

C. Weight for age less than median plus 3 SD

D. Weight for height less than median minus -3SD

Correct answer: D

The World Health Organization (WHO) defines Severe Acute Malnutrition (SAM) in children aged 6 to 59 months by the presence of at least one of three criteria. One of the key anthropometric criteria is severe wasting. Wasting is a measure of acute weight loss and is assessed by the weight-for-height index. A child is diagnosed with SAM if their weight-for-height is less than -3 standard deviations (-3 SD) below the WHO Child Growth Standards median. This indicates a severe and life-threatening degree of acute malnutrition. The other two independent criteria for diagnosing SAM are the presence of bilateral pitting edema of nutritional origin, or a mid-upper arm circumference (MUAC) of less than 11.5 cm. Weight-for-age is an indicator of being underweight but is not used to define SAM.

Question 182. In a -minute-old newborn with suspected PDA, pre-ductal oxygen saturation should be measured at which site?

A. Left Upper limb

B. Left lower limb

C. Right Upper limb

D. Right lower limb

Correct answer: C

No explanation is available for this recall question yet.

Question 183. Which of the following statements accurately describes Fragile X syndrome?

A. Triple nucleotide CAG sequence mutation

B. 10% female carriers mentally retarded

C. Males have IQ 20-40

D. Gain of function mutation

Correct answer: B

Fragile X syndrome is the most common inherited cause of intellectual disability and is caused by a mutation in the FMR1 gene on the X chromosome. The mutation involves an abnormal expansion of the CGG trinucleotide repeat, not CAG, in the promoter region of the gene. This expansion leads to silencing of the FMR1 gene and deficiency of the FMRP (Fragile X Mental Retardation Protein), which is important for normal brain development.Because the disorder is X-linked, males are usually more severely affected than females. Males typically show

moderate intellectual disability, behavioral problems, a long face, large ears, and macroorchidism after puberty. The IQ in affected males is usually around 35–50, not strictly 20–40.Females who carry the mutation may show milder symptoms because they have a second normal X chromosome. Due to X-chromosome inactivation, only a portion of female carriers

Question 184. Which vaccine has to be given every year?

A. Hepatitis A

B. Hepatitis B

C. Influenza

D. Chicken pox

Correct answer: C

The influenza vaccine is unique among routine vaccines in that it is recommended to be administered every year. There are two main reasons for this. First, the immunity conferred by the influenza vaccine wanes over time, and annual revaccination is needed to maintain protection. Second, and more importantly, the influenza virus is constantly evolving through processes called antigenic drift and antigenic shift. Antigenic drift involves small, gradual changes in the virus's surface antigens (hemagglutinin and neuraminidase). These changes result in new viral strains emerging each year that the immune system may not recognize from previous infections or vaccinations. Therefore, the composition of the influenza vaccine must be updated annually to match the strains that are predicted to be circulating in the upcoming flu season. This requirement for an annual update is specific to the influenza vaccine.

Question 185. APGAR score at minute indicates :

A. Mildly depressed

B. Further resuscitation not needed

C. Severely depressed

D. Normal

Correct answer: C

The APGAR score is a rapid, standardized assessment of a newborn's clinical status at 1 and 5 minutes after birth. It evaluates five criteria : Appearance (color), Pulse (heart rate), Grimace (reflex irritability), Activity (muscle tone), and Respiration. Each is scored from 0 to 2, with a total possible score of 10. The score is a guide to the infant's condition and the need for resuscitation. An APGAR score between 7 and 10 is considered normal. A score between

Question 186. Scissor gait is typically observed in which condition?

A. Polio

B. Cerebral palsy

C. Hyperbilirubinemia

D. Hyponatremia

Correct answer: B

A scissor gait is a characteristic type of spastic gait that is a hallmark of spastic cerebral palsy, particularly the spastic diplegia subtype. Cerebral palsy is a group of permanent movement disorders that appear in early childhood. In spastic diplegia, there is damage to the upper motor neurons that control the lower limbs, leading to increased muscle tone (spasticity), particularly in the hip adductor and hamstring muscles. This spasticity of the hip adductors is so pronounced that it causes the thighs and knees to be pulled tightly together and even cross over each other in a scissor-like fashion during walking. The patient walks on their toes with their knees and hips partially flexed. This abnormal gait pattern is highly characteristic of the upper motor neuron damage seen in spastic cerebral palsy.

Question 187. Which limb position or attitude is typically observed in a patient with a posterior hip dislocation?

A. Flexion, Abduction, Internal rotation

B. Flexion, Adduction, Internal rotation

C. Flexion, Abduction, External rotation

D. Flexion, Adduction, External rotation

Correct answer: B

A posterior dislocation of the hip is the most common type of hip dislocation, accounting for approximately 90% of cases. It typically results from a high-energy traumatic force, such as a dashboard injury in a motor vehicle accident. The injury forces the femoral head out of the acetabulum in a posterior and superior direction. This displacement, combined with the unopposed pull of the surrounding muscles (particularly the gluteus medius/minimus and iliopsoas), results in a highly characteristic and pathognomonic deformity or attitude of the limb. The affected leg is held in a position of flexion, adduction, and internal rotation. The limb will also appear shortened. This specific posture is a key clinical sign that allows for immediate diagnosis upon inspection. In contrast, an anterior dislocation of the hip results in the limb being held in abduction and external rotation.

Question 188. Which region of the scaphoid bone is most prone to developing avascular necrosis?

A. Distal 1/3rd

B. Middle 1/3rd

C. Proximal 1/3rd

D. Scaphoid Tubercle

Correct answer: C

The scaphoid bone of the wrist has a tenuous and unique blood supply. The majority of its blood supply (70-80%) enters through small foramina in the dorsal ridge, located in its distal half, and

then flows in a retrograde fashion to supply the proximal part of the bone. The proximal pole (proximal 1/3rd) has a very limited or non-existent direct blood supply. When the scaphoid is fractured, particularly through its waist (the middle 1/3rd), this retrograde blood supply to the proximal fragment can be completely disrupted. This interruption of blood flow makes the proximal pole highly susceptible to developing avascular necrosis (AVN), a condition where the bone tissue dies due to a lack of blood supply. The risk of AVN increases significantly with more proximal fractures. This complication can lead to non-union of the fracture, collapse of the bone, and subsequent degenerative arthritis of the wrist.

Question 189. Pott's puffy tumor is :

A. Subperiosteal abscess of frontal bone

B. Subperiosteal abscess of ethmoid bone

C. Mucocele of frontal bone

D. Mucocele of ethmoid bone

Correct answer: A

Pott's puffy tumor is a rare but serious complication of acute or chronic frontal sinusitis. It is not a true tumor but is an osteomyelitis of the frontal bone with an associated subperiosteal abscess.

Question 190. Which statement accurately describes tenosynovitis of the finger?

A. Fingers held in mild extension / Extension deformity at the involved fingers,

B. Tenosynovitis of the little finger will spread to the thumb rather than the ring finger.

C. With involvement of the little finger, the infection can spread to the index finger.

D. Treatment is conservative.

Correct answer: B

Infectious flexor tenosynovitis is a surgical emergency. Its diagnosis is based on Kanavel's four cardinal signs, one of which is the finger being held in a slightly flexed position for comfort, not extension (A is incorrect). The spread of the infection is dictated by the anatomy of the flexor tendon sheaths. The sheaths for

Question 191. Which is the most common joint involved in septic arthritis?

A. Knee

B. Hip

C. Shoulder

D. Elbow

Correct answer: A

Septic arthritis is an infection within a joint space, which is a rheumatologic emergency requiring prompt diagnosis and treatment to prevent irreversible joint destruction. The infection can occur in any joint but has a strong predilection for large, weight-bearing joints. In adults,

the knee is the most commonly affected joint, accounting for approximately 50% of all cases of septic arthritis. The large size of the knee joint, its extensive synovial membrane, and its susceptibility to trauma and bacteremia from other sources contribute to its high incidence. Following the knee, the next most commonly involved joints are the hip, shoulder, ankle, and wrist. The most common causative organism is Staphylococcus aureus. The classic presentation is an acute onset of a single hot, swollen, and exquisitely painful joint with a restricted range of motion, often accompanied by systemic signs like fever. Diagnosis is confirmed by aspiration of the synovial fluid.

Question 192. In painful arc syndrome, pain occurs during which phase of arm abduction?

A. Mid abduction

B. Initial abduction Click Here to Buy book on Amazon

C. Full range of abduction

D. Overhead abduction

Correct answer: A

The painful arc sign is a classic physical examination finding that is highly suggestive of shoulder impingement syndrome, which most commonly involves inflammation of the supraspinatus tendon (tendinitis) or the subacromial bursa (bursitis). The sign is elicited by asking the patient to actively abduct their arm. The test is positive if the patient experiences pain in the shoulder, not at the beginning or end of the movement, but specifically during the middle range of abduction, typically between 60 and 120 degrees. This pain occurs because, during this specific arc of motion, the greater tuberosity of the humerus passes under the acromion. If the supraspinatus tendon or the subacromial bursa is inflamed and swollen, it will be painfully compressed or impinged in the subacromial space during this mid-range of movement. The pain often subsides as the arm is abducted beyond 120 degrees because the greater tuberosity clears the acromion.

Question 193. Which of the following conditions is an absolute contraindication to using oral contraceptive pills (OCPs)?

A. Chronic renal disease

B. Deep vein thrombosis (DVT)

C. Diabetes mellitus

D. History of amenorrhea

Correct answer: B

The estrogen component of combined oral contraceptive pills (OCPs) is known to have prothrombotic effects, increasing the risk of venous thromboembolism (VTE). According to the World Health Organization (WHO) Medical Eligibility Criteria for Contraceptive Use, a personal history of deep vein thrombosis (DVT) or pulmonary embolism (PE) is an absolute

contraindication (Category 4) for the use of combined hormonal contraceptives. Initiating OCPs in a woman with a history of VTE would place her at an unacceptably high risk for a recurrent, potentially fatal, thrombotic event. Other absolute contraindications include known thrombogenic mutations, active liver disease, breast cancer, and uncontrolled hypertension with vascular disease. While conditions like diabetes with vascular complications can be a contraindication, uncomplicated diabetes is not. Chronic renal disease and a history of amenorrhea are not absolute contraindications.

Question 194. Which of the following statements correctly describes acute fatty liver of pregnancy?

A. Occurs in 1 in 1000 pregnancies

B. Mostly seen in the last trimester

C. Common if female fetus is present

D. May be associated with decreased uric acid

Correct answer: B

Acute Fatty Liver of Pregnancy (AFLP) is a rare but life-threatening obstetric emergency characterized by acute hepatic failure. The correct statement is that it mostly occurs in the third trimester of pregnancy, typically between 30 and 38 weeks of gestation, although it can also present in the early postpartum period. The incidence is much rarer than 1 in 1000, closer

Question 195. Day 0 of the menstrual cycle corresponds to which phase?

A. Menstrual phase

B. Follicular phase

C. Ovulation phase

D. Luteal phase

Correct answer: D

No explanation is available for this recall question yet.

Question 196. The chromosome number of a partial hydatidiform mole is?

A. 46 XX

B. 45 XO

C. 46 XXY

D. 69 XXX

Correct answer: D

A partial hydatidiform mole is a type of gestational trophoblastic disease characterized by abnormal placental development and the presence of an abnormal fetus. The genetic cause of a partial mole is dispermy, which is

Question 197. Vulvar atrophy and itching are treated by?

A. Estrogen ointment

B. Antihistamines

C. Tamoxifen

D. None

Correct answer: A

Vulvovaginal atrophy, also known as atrophic vaginitis or part of the genitourinary syndrome of menopause, is a common condition in postmenopausal women. It is caused by the decline in estrogen levels after menopause. Estrogen is essential for maintaining the health, thickness, and elasticity of the vulvar and vaginal tissues. Estrogen deficiency leads to thinning of the epithelium, decreased blood flow, and loss of collagen, resulting in symptoms of dryness, itching, burning, and dyspareunia (painful intercourse). The most effective and specific treatment for these symptoms is to replace the deficient hormone locally. The application of a low-dose topical estrogen ointment, cream, or vaginal tablet directly restores estrogen to the affected tissues. This reverses the atrophic changes, improves tissue health, and provides significant relief from the itching and dryness. Antihistamines may provide some symptomatic relief from itching but do not address the underlying cause.

Question 198. Overt gestational diabetes is diagnosed when the fasting blood glucose level exceeds which value?

A. >200 mg/dl

B. >126 mg/dl

C. >100 mg/dl

D. >180 mg/dl

Correct answer: B

The diagnosis of diabetes during pregnancy can be categorized as either gestational diabetes mellitus (GDM) or pre-existing overt diabetes that is first diagnosed during pregnancy. The criteria for diagnosing overt diabetes in pregnancy are the same as the standard diagnostic criteria for diabetes in non-pregnant adults. According to guidelines from the American Diabetes Association and other major bodies, a diagnosis of overt diabetes can be made if any one of the following criteria is met at the first prenatal visit :Fasting plasma glucose ≥ 126 mg/dL (7.0 mmol/L) Hemoglobin A1c ≥ 6.5%Random plasma glucose ≥ 200 mg/dL in a patient with classic symptoms of hyperglycemia.This is distinct from the diagnosis of GDM, which is defined by lower glucose thresholds on an oral glucose tolerance test (OGTT) performed later in gestation (typically 24-28 weeks).

Question 199. Magnesium sulfate (MgSO4) has no role in the prevention of :

A. Seizures in severe pre-eclampsia

B. Recurrent seizures in eclampsia

C. Respiratory Distress Syndrome (RDS) in a premature baby

D. Tachycardia

Correct answer: C

Magnesium sulfate is a critically important medication in obstetrics with several key indications. It is the drug of choice for the prophylaxis of eclamptic seizures in women with severe pre-eclampsia (A) and for the treatment and prevention of recurrent seizures in women with eclampsia (B). It also has a significant role as a neuroprotective agent; when administered to mothers in preterm labor, it has been shown to reduce the risk and severity of cerebral palsy in the premature infant. However, magnesium sulfate does not have a role in the prevention of Respiratory Distress Syndrome (RDS) in premature babies. The prevention of RDS is achieved by administering antenatal corticosteroids (like betamethasone or dexamethasone) to the mother, which accelerates fetal lung maturity and surfactant production. Tachycardia (D) is not a primary indication for its use; in fact, magnesium toxicity can cause bradycardia.

Question 200. Green frothy vaginal discharge is produced by?

A. Herpes simplex

B. Candida albicans

C. Trichomonas vaginalis

D. Normal vaginal flora

Correct answer: C

A profuse, yellow-green, malodorous, and frothy (bubbly) vaginal discharge is the classic and pathognomonic sign of trichomoniasis, a sexually transmitted infection caused by the flagellated protozoan Trichomonas vaginalis. The characteristic appearance of the discharge is due to the inflammatory response elicited by the parasite in the vaginal and cervical mucosa. The infection is also commonly associated with significant vulvovaginal irritation, dysuria, and dyspareunia. On examination, a strawberry cervix (colpitis macularis) may be seen. This presentation is distinct from other common causes of vaginitis. Bacterial vaginosis is typically associated with a thin, greyish-white, fishy-smelling discharge. Candidiasis (B) is characterized by a thick, white, curd-like discharge with intense itching. Herpes simplex

Question 201. Which of the following statements about physiological changes during pregnancy is false?

A. Increase in cardiac output

B. Increase in total protein

C. Decrease in residual volume

D. Increase in GFR

Correct answer: B

Pregnancy induces profound physiological changes in nearly every organ system. The statement that is false is the increase in total protein. Due to the phenomenon of hemodilution, the plasma volume expands significantly more (by about 40-50%) than the red cell mass (which increases by 20-30%). This leads to a decrease in the concentration of many

Question 202. A 1-week pregnant woman (dates confirmed radiologically) has no contractions, no effacement, and no dilation. Which intervention should not be performed?

A. Intracervical Foley's

B. PGE1 tab

C. PGE2 gel

D. PGF2alpha

Correct answer: D

This patient is post-term (41 weeks) with an unfavorable cervix (no effacement or dilation), which is an indication for cervical ripening prior to labor induction. Several methods are used for this purpose. Prostaglandin E1 (PGE1), in the form of a misoprostol tablet (B), and Prostaglandin E2 (PGE2), in the form of a dinoprostone gel or insert (C), are both commonly used and effective pharmacological agents for cervical ripening. A mechanical method, such as inserting an intracervical Foley's catheter (A), is also a safe and effective option. In contrast, Prostaglandin F2-alpha (PGF2α), and its analogue carboprost, are potent uterotonic agents that cause powerful uterine contractions but have a minimal effect on cervical ripening. They are primarily used to treat postpartum hemorrhage due to uterine atony. Administering PGF2α to induce labor on an unripe cervix would be ineffective for ripening and could cause dangerous uterine hyperstimulation.

Question 203. The double decidua sign is observed during which trimester of pregnancy?

A. 1st trimester

B. 2nd early trimester

C. 2nd late trimester

D. 3rd trimester

Correct answer: A

The double decidual sac sign is an important and early sonographic finding that is used to confirm the presence of an intrauterine pregnancy (IUP) before the embryo or yolk sac becomes visible. It is typically seen on a transvaginal ultrasound during the first trimester, usually between 4.5 and 6 weeks of gestation. The sign consists of two concentric, echogenic (bright) rings surrounding a small, anechoic (black) gestational sac. The inner ring represents the decidua capsularis (the decidua overlying the chorionic sac) and the chorion. The outer ring represents the decidua parietalis (the decidua lining the rest of the uterine cavity). The anechoic space between these two layers is the uterine cavity. The presence of the double decidual sac sign is a highly reliable indicator of an early IUP and is crucial for helping to differentiate it from a pseudosac that can be seen with an ectopic pregnancy.

Question 204. What is the recommended management for a 0-year-old woman

presenting with third-degree uterine prolapse?

A. Vaginal hysterectomy with pelvic floor repair

B. Pelvic floor repair

C. Sacrospinous fixation

D. Pessary

Correct answer: A

A third-degree uterine prolapse (procidentia) is a severe form of pelvic organ prolapse where the entire uterus descends and protrudes outside the vaginal introitus. In a postmenopausal, 60-year-old woman who is sexually active or does not wish to use a pessary, and is a suitable surgical candidate, the definitive and most appropriate management is surgical correction. The standard surgical procedure for this condition is a vaginal hysterectomy to remove the prolapsed uterus, combined with a comprehensive pelvic floor repair. The repair involves correcting associated defects such as a cystocele (anterior repair or anterior colporrhaphy) and a rectocele (posterior

Question 205. At how many weeks of gestation can nuchal translucency be assessed on ultrasonography?

A. 11-13 weeks

B. 18-20 weeks

C. 8-10 weeks

D. 20-22 weeks

Correct answer: A

The nuchal translucency (NT) measurement is a key component of the first-trimester screening for fetal aneuploidies, particularly Down syndrome (Trisomy 21). The NT is the sonographic appearance of a collection of fluid under the skin behind the fetal neck. This measurement is performed using a transabdominal or transvaginal ultrasound during a very specific and narrow gestational window. The optimal time to measure the NT is between 11 weeks and 13 weeks + 6 days of gestation. During this period, the fetal crown-rump length (CRL) should be between 45 mm and 84 mm. An increased NT thickness during this specific timeframe is associated with an increased risk of chromosomal abnormalities, congenital heart defects, and other genetic syndromes. The measurement is not valid or interpretable outside of this specific gestational window.

Question 206. What is the preferred first-line treatment for mastitis in a breastfeeding mother?

A. Cloxacillin

B. Cefazolin

C. Ceftriaxone

D. Ampicillin

Correct answer: A

Lactational mastitis is an infection of the breast tissue that most commonly occurs in breast feeding mothers. The most frequent causative organism is Staphylococcus aureus, which enters the breast tissue through a crack or fissure in the nipple. The treatment of mastitis involves both supportive measures (effective milk removal, warm compresses) and antibiotic therapy. The choice of antibiotic must provide coverage for S. aureus. Dicloxacillin or cloxacillin (in regions where it is available) are anti-staphylococcal penicillins and are considered the first-line treatment for uncomplicated lactational mastitis. They are effective against methicillin-sensitive S. aureus (MSSA) and are safe for the breastfeeding infant. Cephalexin is another good first-line option. If community-acquired MRSA is a concern, clindamycin or trimethoprim-sulfamethoxazole would be used. Ceftriaxone and ampicillin do not provide reliable coverage for penicillinase-producing S. aureus.

Question 207. What is the recommended treatment for a patient with recurrent miscarriages due to antiphospholipid syndrome?

A. Aspirin only

B. Aspirin + Low molecular weight Heparin

C. Aspirin + Low molecular weight Heparin + Prednisolone

D. No treatment

Correct answer: B

Antiphospholipid Syndrome (APS) is an autoimmune disorder that causes recurrent arterial and venous thrombosis and/or specific pregnancy morbidities, including recurrent early pregnancy loss. The underlying pathophysiology is thought to involve a hypercoagulable state and thrombosis of the placental vasculature. For a woman with a history of recurrent pregnancy loss who meets the diagnostic criteria for APS,

Question 208. Which of the following conditions is not classified under gestational trophoblastic neoplasms (GTN)?

A. Choriocarcinoma

B. Placental site trophoblastic tumour

C. Invasive mole

D. Partial mole

Correct answer: D

Gestational Trophoblastic Disease (GTD) is a spectrum of proliferative disorders of the trophoblastic tissue of the placenta. This spectrum includes the benign, pre-malignant conditions of partial hydatidiform mole and complete hydatidiform mole. Gestational Trophoblastic Neoplasia (GTN), on the other hand, is the term used for the malignant forms of GTD. GTN is diagnosed when there is evidence of persistent or invasive trophoblastic tissue, typically after the evacuation of a molar pregnancy. The specific entities that are classified as

GTN include :1. Invasive mole : A hydatidiform mole that invades the myometrium.2. Choriocarcinoma : A highly malignant and metastatic tumor.3. Placental-site trophoblastic tumor (PSTT) and Epithelioid trophoblastic tumor (ETT) : Rare forms of GTN.Therefore, while a partial mole is a precursor, it is not itself classified as a GTN; it is a form of GTD with a low potential for malignant transformation.

Question 209. Which vaccine is contraindicated in pregnancy?

A. Chickenpox

B. Rabies

C. Tetanus toxoid

D. Hepatitis B

Correct answer: A

No explanation is available for this recall question yet.

Question 210. What treatment options are suitable for a 5-year-old woman presenting with months of menorrhagia and a cm submucosal fibroid detected on ultrasound?

A. Oral contraceptive pills (OCP) for 3 months

B. Progesterone for 3 months

C. Endometrial sampling

D. Hysterectomy

Correct answer: C

This patient is over 40 years old and presents with abnormal uterine bleeding (menorrhagia). While the submucosal fibroid is a likely cause of her symptoms, it is absolutely essential to rule out an underlying endometrial malignancy or hyperplasia in any woman in this age group with AUB. Therefore, the most appropriate and mandatory next step in management, before considering any specific treatment for the fibroid, is to perform an endometrial sampling. This can be done via an office-based endometrial biopsy (pipelle biopsy) or a formal hysteroscopy with dilatation and curettage (D&C). This will provide a histological diagnosis and exclude endometrial cancer, which can also present with heavy bleeding. Once malignancy is ruled out, treatment options for the fibroid, which could include hysteroscopic myomectomy or hormonal therapies, can be considered.

Question 211. In a patient with low ovarian reserve, the anti- Müllerian hormone (AMH) level will be?

A. <1

B. 1-4

C. 7

D. >10

Correct answer: A

Anti-Müllerian Hormone (AMH) is a glycoprotein hormone that is secreted exclusively by the granulosa cells of small, growing, preantral and small antral follicles in the ovary. Because it is produced by this specific cohort of developing follicles, the serum AMH level serves as a direct and reliable biomarker for the size of the remaining oocyte pool, or the ovarian reserve. A higher AMH level reflects a larger pool of growing follicles and a robust ovarian reserve. Conversely, as a woman ages and her ovarian reserve declines, the number of primordial follicles decreases, leading to a fall in the serum AMH level. A low ovarian reserve is therefore indicated by a low AMH level. While the exact reference ranges can vary slightly between assays, an AMH level less than 1.0 ng/mL is generally considered to be indicative of a diminished or low ovarian reserve.

Question 212. What is the presenting diameter of a completely flexed fetal head?

A. Suboccipito-bregmatic diameter

B. Suboccipito-frontal diameter

C. Occipito-frontal diameter

D. Occipito-posterior position

Correct answer: A

For a successful vaginal delivery, the fetal head must engage in the maternal pelvis in an attitude of full flexion (with the chin tucked onto the chest). In this fully flexed position, the smallest anteroposterior diameter of the fetal skull presents to the pelvic inlet. This smallest diameter is the suboccipito-bregmatic (SOB) diameter. It is measured from the nape of the neck (just below the occipital protuberance) to the center of the anterior fontanelle (the bregma). The average SOB diameter is approximately

Question 213. What is the dose of ulipristal acetate?

A. 300mg

B. 30mg

C. 300µg

D. 30µg

Correct answer: B

Ulipristal acetate is a selective progesterone receptor modulator (SPRM) that is used for two main indications : emergency contraception and the medical management of uterine fibroids. For its use as an oral emergency contraceptive, ulipristal acetate is administered as a single oral dose of 30 mg. It is most effective when taken as soon as possible after unprotected intercourse but can be used up to 120 hours (5 days) later. Its primary mechanism of action for emergency contraception is to inhibit or delay ovulation by blocking the effects of progesterone on the luteinizing hormone (LH) surge. It is considered one of the most effective oral emergency contraceptive options available. The higher dose of 300 mg is related to its use as an

abortifacient (in combination with other drugs), not as an emergency contraceptive.

Question 214. What is the primary source of amniotic fluid after 0 weeks of gestation?

A. Ultrafiltrate and maternal plasma

B. Fetal urine

C. Fetal lung fluid

D. Fetal skin

Correct answer: B

The volume and composition of amniotic fluid change throughout pregnancy. In the first trimester, the amniotic fluid is primarily an ultrafiltrate of maternal plasma that crosses the amnion. However, as the pregnancy progresses into the second and third trimesters, the dynamics change significantly. After approximately 20 weeks of gestation, the single largest contributor to the volume of amniotic

Question 215. What is the maximum allowable dose of $PGF_2\alpha$ (Prostaglandin F2 alpha) for managing postpartum hemorrhage (PPH)?

A. 20 µg

B. 200 µg

C. 2 mg

D. 20 mg

Correct answer: C

Prostaglandin F2-alpha (PGF2α), in the form of its synthetic analogue carboprost tromethamine, is a potent uterotonic agent used as a second-line treatment for postpartum hemorrhage (PPH) due to uterine atony that is refractory to oxytocin and methylergometrine. Carboprost is administered via deep intramuscular (IM) injection. The standard single dose is 250 micrograms (µg). This dose can be repeated every 15 to 90 minutes if uterine tone does not improve and bleeding continues. However, there is a maximum cumulative dose that should not be exceeded due to the risk of significant side effects (such as bronchospasm, hypertension, and severe diarrhea). The total maximum dose of carboprost that can be administered is 2 milligrams (mg), which is equivalent to a total of eight 250 µg injections.

Question 216. Which of the following statements about the skin is NOT true?

A. Both dermis and epidermis are derived from ectoderm

B. Skin accounts for total of 15% of body weight

C. Most of the cells in skin are keratinocytes derived from ectoderm

D. Dermis is made up of type 1 and type 3 collagen in a 3 :2 ratio

Correct answer: A

The statement that is not true is that both the dermis and epidermis are derived from the

ectoderm. The skin is composed of two main layers with distinct embryological origins. The superficial layer, the epidermis, is a stratified squamous epithelium that is derived from the surface ectoderm. This is true, and its primary cell type is the keratinocyte (C is a true statement). However, the deeper layer, the dermis, which is the connective tissue layer of the skin, is derived from the mesoderm. This mesodermal origin gives rise to the fibroblasts that produce the collagen (primarily Type I and Type III) and elastin fibers that make up the dermis (D is a true statement). The skin is the body's largest organ and accounts for approximately 15% of the total body weight (B is a true statement). Therefore, the incorrect statement is the one claiming a common ectodermal origin for both layers.

Question 217. Which of the following anesthetic drugs is NOT cardiodepressive?

A. Propofol

B. Thiopentone

C. Ketamine

D. Etomidate

Correct answer: C

Most intravenous anesthetic induction agents cause some degree of cardiovascular depression, typically manifesting as a decrease in blood pressure, heart rate, and myocardial contractility. Propofol and thiopentone are both significant cardiodepressants, causing vasodilation and direct myocardial depression that can lead to hypotension. Etomidate is known for its remarkable cardiovascular stability, causing minimal changes in hemodynamics. However, ketamine is unique in that it is not cardiodepressive; instead, it is a cardiovascular stimulant. Ketamine acts as a direct myocardial depressant, but this effect is completely overridden by its powerful central sympathomimetic action. It stimulates the sympathetic nervous system, leading to an increase in heart rate, blood pressure, and cardiac output. This makes ketamine a particularly useful induction agent for hemodynamically unstable patients, such as those in shock from trauma or sepsis.

Question 218. Which method is most commonly used to assess the depth of anesthesia during surgery?

A. BIS (Bispectral Index)

B. Capnography

C. EEG (Electroencephalography)

D. Transesophageal echocardiography (TEE)

Correct answer: A

While clinical signs (heart rate, blood pressure, movement) are traditionally used to assess the depth of anesthesia, they can be unreliable. Processed electroencephalogram (EEG) monitors have been developed to provide a more objective measure of the hypnotic component of anesthesia. The most common and widely used of these is the Bispectral Index (BIS) monitor.

The BIS monitor uses a sensor placed on the patient's forehead to record EEG data. It then applies a proprietary algorithm to process this complex EEG information and convert it into a single, dimensionless number ranging from 0 (complete cortical suppression) to 100 (fully awake). A BIS value between 40 and 60 is generally considered indicative of an adequate depth of general anesthesia for surgery, with a reduced risk of intraoperative awareness. Capnography monitors ventilation, not anesthetic depth.

Question 219. MRP2 (Multidrug Resistance-Associated Protein 2) is linked with which condition?

A. Rotor syndrome

B. Dubin-Johnson syndrome

C. Crigler-Najjar syndrome

D. Gilbert syndrome

Correct answer: B

Dubin-Johnson syndrome is a rare, benign, autosomal recessive disorder characterized by a chronic, predominantly conjugated hyperbilirubinemia. The underlying genetic defect is a mutation in the gene that codes for the Multidrug Resistance-Associated Protein 2 (MRP2), also known as the canalicular multispecific organic anion transporter (cMOAT). This protein is an ATP-dependent efflux pump located on the apical (canalicular) membrane of hepatocytes. Its normal function is to actively transport conjugated bilirubin

Question 220. Which anesthetic gas is known to cause the greatest degree of respiratory irritation?

A. Halothane

B. Enflurane

C. Desflurane

D. Sevoflurane

Correct answer: C

The modern volatile anesthetic gases vary in their pungency and their tendency to cause airway irritation. This property is important as it determines their suitability for inhalational induction of anesthesia. Desflurane is well-known for being the most pungent and irritant of the commonly used volatile anesthetics. When administered at higher concentrations, it can cause significant airway irritation, leading to coughing, breath-holding, laryngospasm, and increased salivation and respiratory secretions. Because of this high degree of pungency, desflurane is not suitable for and is generally contraindicated for inhalational induction of anesthesia, especially in children. In contrast, sevoflurane (D) is very non-pungent, has a sweet smell, and causes minimal airway irritation, making it the agent of choice for smooth inhalational inductions. Halothane (A) is also non-pungent but is rarely used now due to other side effects.

Question 221. Which anesthetic agent is most commonly associated with pain during intravenous injection?

A. Methohexital

B. Ketamine

C. Propofol

D. Etomidate

Correct answer: C

Pain on injection is a well-known and very common side effect of several intravenous

Question 222. Solitary lytic lesions are characteristic of which of the following conditions?

A. Atherosclerosis

B. Plasmacytoma

C. Mitral stenosis

D. Osteoblast

Correct answer: B

A solitary plasmacytoma of bone is a localized tumor composed of a monoclonal proliferation of plasma cells, which occurs in the absence of

Question 223. Which of the following contrast agents is not water-soluble?

A. Barium

B. Iohexol

C. Iopamidol

D. Gastrografin

Correct answer: A

Radiological contrast agents are used to enhance the visibility of internal structures. They are broadly classified based on their properties. Iodinated contrast agents, such as iohexol and iopamidol (which are non-ionic, low-osmolar agents), and Gastrografin (which is a high-osmolar, ionic agent containing diatrizoate meglumine and diatrizoate sodium), are all water-soluble compounds. They are used for a wide range of applications, including intravenous urography, angiography, CT scans, and gastrointestinal studies. In contrast, barium sulfate is an inert, metallic salt that is completely insoluble in water. It is used exclusively for imaging the gastrointestinal tract. It is administered orally or rectally as a suspension. Because it is not absorbed, it provides excellent opacification of the GI lumen. Its insolubility means it is contraindicated if a GI perforation is suspected, as leakage into the peritoneum can cause severe peritonitis.

Question 224. Which of the following statements about somnambulism (sleepwalking) is false?

A. Sleepwalking

B. Patient consciousness is preserved

C. Disorder of sleep arousal

D. Low-level motor skill/function is present

Correct answer: B

Somnambulism, or sleepwalking, is classified as a disorder of arousal from non-REM sleep (a parasomnia). It typically occurs during the first third of the night, arising from Stage 3, slow-wave sleep. The statement that is NOT true is that patient consciousness is preserved. A defining feature of a sleepwalking episode is an altered state of consciousness. The individual appears to be in a dissociated state, with a low level of awareness and responsiveness to their environment. They have a blank, staring face and are difficult to awaken. Crucially, they have amnesia for the event upon waking up. While they can perform complex motor behaviors (low-level motor skills are present), such as walking, opening doors, or dressing, they are not consciously aware of their actions.

Question 225. The Confusion Assessment Method (CAM) is used to evaluate which condition?

A. Schizophrenia

B. Delirium

C. Dementia

D. Depression

Correct answer: B

The Confusion Assessment Method (CAM) is a widely used, standardized, and validated screening tool specifically designed for the rapid and accurate identification of delirium. Delirium is an acute confusional state characterized by a disturbance in attention, awareness, and cognition that develops over a short period and tends to fluctuate in severity. The CAM algorithm is based on four cardinal features of delirium. A diagnosis of delirium by CAM requires the presence of :1. Acute onset and fluctuating course, AND2. Inattention, PLUS3. Disorganized thinking, OR4. Altered level of consciousness.The tool is designed for use by non-psychiatric clinicians at the bedside and has high sensitivity and specificity for diagnosing delirium, particularly in elderly or critically ill patients, helping to distinguish it from other conditions like dementia or depression.

Question 226. What is the most frequently reported symptom in obsessive–compulsive disorder (OCD)?

A. Magical thinking

B. Dirt contamination

C. Pathological doubt

D. Symmetry

Correct answer: B

Obsessive-Compulsive Disorder (OCD) is characterized by obsessions and compulsions that fall into several common symptom dimensions. While all the options listed are common themes, epidemiological and clinical studies consistently show that the most prevalent symptom dimension involves obsessions about contamination with dirt, germs, or chemicals. These obsessions are recurrent, intrusive thoughts or fears of being contaminated or of spreading contamination to others. This intense fear drives the most common compulsion associated with OCD : repetitive washing and cleaning rituals. Patients may engage in prolonged hand washing, excessive showering, or ritualized cleaning of objects and their environment in an attempt to neutralize the perceived threat and reduce the

Question 227. Which test relies on the idea that a suspect's behavior changes when they recognize or react to an event they have witnessed?

A. Narcoanalysis

B. Brain mapping

C. Truth serum testing

D. Polygraph

Correct answer: B

The technique described is Brain Electrical Oscillation Signature Profiling (BEOS), commonly referred to as brain mapping or brain fingerprinting. This is a neuro-investigative technique that is based on the principle of detecting experiential knowledge. The underlying theory is that when an individual witnesses a significant event, their brain creates a memory trace of that event. When the suspect is later presented with stimuli (words, pictures) that are relevant to the crime (probes), their brain will automatically recognize these stimuli if they have prior knowledge of the event. This recognition elicits a specific, characteristic brainwave response known as a P300-MERMER (Memory and Encoding Related Multifaceted Electroencephalographic Response). An EEG is used to detect this brainwave, which is considered an involuntary physiological reaction, thus revealing whether the suspect possesses knowledge of the crime that only the perpetrator would have.

Question 228. Intense depression and profound misery without an obvious cause is termed what?

A. Melancholia

B. Major depressive disorder

C. Mania

D. Schizophrenia

Correct answer: A

Melancholia is a specifier for Major Depressive Disorder that denotes a particularly severe form of depression. The term has historical roots and is used to describe a depressive syndrome

characterized by a profound and pervasive loss of pleasure in all or almost all activities

Question 229. Which of the following statements about delusional disorder is not correct?

A. Held with absolute conviction

B. Usually false

C. Not amenable to reasoning

D. Occurs at an early age

Correct answer: D

A delusion is a fixed, false belief that is held with absolute conviction, is not amenable to reason or contradictory evidence, and is not in keeping with the person's cultural or religious background. Therefore, statements A, B, and C are all true descriptions of the core properties of a delusion. Delusional disorder is a psychotic disorder where the primary symptom is the presence of one or more non-bizarre delusions for at least one month, without the other prominent symptoms of schizophrenia. The statement that is not true is that it occurs at an early age. In contrast to schizophrenia, which typically has its onset in late adolescence or early adulthood, the onset of delusional disorder is generally in middle to late adult life, with the mean age of onset being around 40 years.