

INI CET 2020 Answer Key PDF

Q1. (d) Fasciculus gracilis .Explanation: The medial lemniscus originates from the decussation of the internal arcuate fibers, which are formed by the second-order neurons of the fasciculus gracilis and cuneatus.

Q2. (b) Midbrain .Explanation: The superior cerebellar peduncle crosses at the level of the inferior colliculi in the midbrain, making the midbrain the correct anatomical level for its decussation.

Q3. (a) Sympathetic chain .Explanation: While the carotid artery, internal jugular vein, and vagus nerve are enclosed in the carotid sheath, the sympathetic chain runs posterior to the sheath and is not included within its contents.

Q4. (a) Human cells can divide a finite number of times only .Explanation: The Hayflick limit refers to the finite number of times a normal human cell can divide before senescence, largely due to telomere shortening.

Q5. (c) DNA replication .Explanation: DNA methylation mainly regulates gene expression, chromatin architecture, and mismatch repair; it does not play a direct role in the DNA replication process.

Q6. (c) Denaturation, annealing, extension .Explanation: PCR cycles through three key steps—denaturation (to separate DNA strands), annealing (primer binding), and extension (DNA synthesis by polymerase).

Q7. (a) Protein .Explanation: Protein digestion requires the most energy, resulting in a greater thermic effect compared to carbohydrates and fats.

Q8. (b) Skin–liver–kidney .Explanation: Vitamin D is synthesized in the skin under UV exposure, hydroxylated in the liver, and activated in the kidney to its biologically active form.

Q9. (b) Competitive inhibition .Explanation: Dicoumarol competitively inhibits vitamin K epoxide reductase, an enzyme essential for activating clotting factors.

Q10. (c) $K_m = 2 \mu M$, $K_{cat} = 200/sec$.Explanation: Catalytic efficiency is determined by the K_{cat}/K_m ratio. Option C has the highest efficiency (100) due to a high turnover number and low K_m .

Q11. (d) No treatment is required as he already has Hep B antibody titers from vaccination .Explanation: An anti-HBs level above 10 mIU/ml is considered protective. A titer >105 mIU/ml indicates strong immunity.

Q12. (d) >25 years .Explanation: Fusion of the medial clavicle and the sternum typically occurs after the age of 25 and is used as a marker in forensic age estimation.

Q13. (a, c, and e) (Document refusal, Counsel, Inform police) .Explanation: In minors, consent for examination is essential; however, refusal must be documented, the police must be informed, and counseling provided.

Q14. (b) BSL-2 .Explanation: Molecular diagnostics like RT-PCR for SARS-CoV-2 can safely be performed in a BSL-2 lab using standard biosafety precautions.

Q15. (b) rpoB .Explanation: GeneXpert detects mutations in the rpoB gene, which is associated with rifampicin resistance in tuberculosis.

Q16. (b) Doctrine of anticipation .Explanation: The doctrine of anticipation allows physicians to act in emergency situations without prior consent if it's necessary to save the patient's life.

Q17. (a, c, and d) (Haemodilution, Hyponatremia, Arrhythmia) .Explanation: Freshwater drowning causes electrolyte imbalances such as haemodilution and hyponatremia, which can lead to cardiac arrhythmias.

Q18. (c) Produces NLF-producing colonies in MacConkey agar .Explanation: *Orientia tsutsugamushi*, the causative agent of scrub typhus, is an obligate intracellular pathogen and does not grow on MacConkey agar.

Q19. (a) Cell mediated response .Explanation: Type IV hypersensitivity is a delayed, T-cell mediated immune reaction, not involving antibodies.

Q20. (c) Haemophilus influenzae .Explanation: *Haemophilus influenzae* is a pleomorphic gram-negative bacillus, catalase and oxidase positive, and requires chocolate agar for growth.

Q21. (c) Chancroid .Explanation: Chancroid, caused by *Haemophilus ducreyi*, is characterized by painful, non-indurated ulcers, in contrast to the painless ulcer of syphilis.

Q22. (c) They can divide without any regulatory stimulus .Explanation: Stem cells require external regulatory signals to initiate division; they do not divide autonomously.

Q23. (a, b, and c) (Before/After exam, After touching surroundings) .Explanation: Sanitizers are appropriate when hands are not visibly dirty. Visibly soiled hands must be washed with soap and water.

Q24. (d) Enterovirus .Explanation: Enteroviruses are the most common cause of aseptic meningitis.

Q25. (d) Increased risk of GI lymphoma .Explanation: Celiac disease is associated with an increased risk of enteropathy-associated T-cell lymphoma.

Q26. (a) Invasive aspergillosis .Explanation: Galactomannan is a fungal cell wall component specific to *Aspergillus* species.

Q27. (a-A, b-B, c-C, d-D) (ETEC, EIEC, EHEC, EPEC) .Explanation: ETEC (secretory diarrhea), EIEC (invasion), EHEC (vascular damage), and EPEC (microvilli effacement).

Q28. (b) Cells are spherical .Explanation: Oxidative damage in G6PD deficiency leads to hemolysis and the formation of spherocytes due to membrane damage.

Q29. (b) Rabies .Explanation: Rabies is almost universally fatal after the onset of clinical symptoms.

Q30. (a) Transfusion reaction .Explanation: Fever, tachypnea, and bleeding from tubes post-transfusion are consistent with an acute hemolytic transfusion reaction and DIC.

Q31. (a) 6 follicular clusters each with 10 cells each .Explanation: The Bethesda System defines adequate thyroid FNAC as at least six clusters of well-preserved follicular epithelial cells.

Q32. (c) 2 litres of crystalloid infusion .Explanation: Initial fluid resuscitation with crystalloids is the priority in a hemodynamically unstable patient with suspected perforation.

Q33. (b) Alzheimer's disease .Explanation: Alzheimer's disease is primarily a tauopathy, while Parkinson's, Lewy body dementia, and MSA are synucleinopathies.

Q34. (b) Hypercalcemia .Explanation: Stored blood contains citrate which chelates calcium; massive transfusion leads to hypocalcemia, not hypercalcemia.

- Q35. (b) Endometrial cancer** .Explanation: Tamoxifen is an estrogen antagonist in breast tissue but acts as an agonist in the endometrium, increasing cancer risk.
- Q36. (b) Neuropathic ulcer** .Explanation: Neuropathic ulcers are typically painless, located at pressure points, and associated with peripheral neuropathy in diabetic patients.
- Q37. (d) Acute pancreatitis without choledocholithiasis** .Explanation: ERCP is generally avoided in acute pancreatitis unless there is a biliary obstruction or cholangitis.
- Q38. (c) Retroperitoneal hematoma** .Explanation: eFAST is excellent for detecting free fluid in thoracic and peritoneal cavities, but retroperitoneal bleeding often goes undetected.
- Q39. (c) Zone 2 injury with expanding hematoma should be treated surgically** .Explanation: Zone 2 injuries with expanding hematomas indicate active bleeding and require surgical intervention.
- Q40. (a, c, and d) (Mammography, Biopsy of mass, Biopsy of node)** .Explanation: Bilateral mammography and tissue diagnosis via biopsy are essential first steps for a suspicious breast mass.
- Q41. (d) Duplex Scan** .Explanation: Duplex ultrasound is a non-invasive, first-line diagnostic tool for evaluating peripheral arterial disease.
- Q42. (c) Mass is mobile perpendicular to the mesentery attachment** .Explanation: Tillaux sign is seen in mesenteric cysts or ileocecal masses where the mass is mobile at right angles to the mesenteric root.
- Q43. (c and d) (Hypochloremia/hypokalemia, Metabolic alkalosis)** .Explanation: Congenital hypertrophic pyloric stenosis leads to persistent non-bilious vomiting, resulting in hypochloremic, hypokalemic metabolic alkalosis.
- Q44. (c) Thoracic cavity** .Explanation: eFAST (extended Focused Assessment with Sonography in Trauma) includes thoracic evaluation for pneumothorax and hemothorax.
- Q45. (d) C4** .Explanation: CEAP stage C4 corresponds to skin changes such as eczema, pigmentation, and lipodermatosclerosis.
- Q46. (c) Infundibulum** .Explanation: The infundibulum (conus arteriosus) arises from the bulbus cordis and forms the outflow tract of the right ventricle.
- Q47. (d) Extension and lateral rotation** .Explanation: The marked area (gluteal tuberosity) is the insertion of the gluteus maximus, which extends and laterally rotates the hip.
- Q48. (b) Middle meningeal artery** .Explanation: The middle meningeal artery runs deep to the pterion (marked) and is commonly involved in epidural hematomas.
- Q49. (c) Opponens pollicis** .Explanation: The marked location on the first metacarpal bone corresponds to the insertion site of the opponens pollicis.
- Q50. (a) Foramen rotundum** .Explanation: The foramen rotundum transmits the maxillary division (V2) of the trigeminal nerve to the pterygopalatine fossa.
- Q51. (d) Pectoralis major** .Explanation: Overhead abduction involves deltoid, trapezius, and serratus anterior; the pectoralis major is an adductor and medial rotator.
- Q52. (b) [Optic Nerve]** .Explanation: Based on standard cranial nerve mapping, B represents a nerve not involved in extraocular motor control (such as the optic nerve).

- Q53. (d) Fibrous joint** .Explanation: The middle radioulnar joint is a fibrous syndesmosis formed by the interosseous membrane.
- Q54. (c) T3–T4** .Explanation: Based on standard anatomical landmarks of the great vessels and trachea, T3–T4 is the correct vertebral level.
- Q55. (d) Don't involve in intercourse when active lesions are present** .Explanation: Genital warts (HPV) carry the highest transmission risk during active outbreaks; abstinence is recommended during these times.
- Q56. (b) Sporothrix schenckii** .Explanation: Sporotrichosis is a fungal infection often associated with thorn pricks ("rose gardener's disease") and presents with nodular lymphangitis.
- Q57. (b) Chikungunya** .Explanation: Chikungunya often causes fever, polyarthritis, and characteristic pigmentary changes over the nose.
- Q58. (b) Bleomycin** .Explanation: Bleomycin toxicity can lead to flagellate hyperpigmentation, a distinctive dermatologic reaction.
- Q59. (b) Dapsone** .Explanation: Neutrophil infiltration and subepidermal blistering in a child are suggestive of linear IgA disease, which is treated with dapsone.
- Q60. (c) Oral steroids** .Explanation: Systemic (oral) corticosteroids are avoided in chronic plaque psoriasis due to the high risk of severe rebound flares.
- Q61. (c) Tracheoesophageal prosthesis** .Explanation: A tracheoesophageal prosthesis allows air to pass into the esophagus to produce sound after a total laryngectomy.
- Q62. (b) Dix-Hallpike maneuver** .Explanation: The Dix-Hallpike maneuver is the standard diagnostic test for benign paroxysmal positional vertigo (BPPV).
- Q63. (b) Arytenoids** .Explanation: Arytenoids are laryngeal structures and are not visible during a standard posterior rhinoscopy or oropharyngeal examination.
- Q64. (b) Caldwell view** .Explanation: The Caldwell view is a specific radiographic projection used for optimal evaluation of the frontal and ethmoid sinuses.
- Q65. (a) Inferior turbinate** .Explanation: The inferior turbinate is the largest and most anterior turbinate seen during nasal endoscopy.
- Q66. (BADCE)** .Explanation: The correct auditory pathway is: Cochlear Nucleus → Superior Olivary Nucleus → Lateral Lemniscus → Inferior Colliculus → Medial Geniculate Body.
- Q67. (c) Cladribine** .Explanation: Cladribine (a purine analog) is the highly effective first-line drug of choice for hairy cell leukemia.
- Q68. (c) Leptospirosis** .Explanation: Leptospirosis often presents with a biphasic fever pattern and characteristic systemic signs.
- Q69. (b) The transplantation is cost-effective after the second transplant year** .Explanation: While initial costs are high, renal transplantation becomes more cost-effective than long-term dialysis after approximately two years.
- Q70. (b) Cheiroarthropathy** .Explanation: Diabetic cheiroarthropathy causes stiffening of the hands, resulting in the "prayer sign" or "namaste sign."

Q71. (d) Posterior limb .Explanation: The corticospinal tract, which is affected in hemiplegia, passes through the posterior limb of the internal capsule.

Q72. (d) CSF leak headache .Explanation: Low-pressure headaches (due to CSF leak) are characteristically positional—worsening when upright and improving when lying flat.

Q73. (c) Syringomyelia .Explanation: Syringomyelia causes a "cape-like" distribution of loss of pain and temperature sensation while fine touch is preserved.

Q74. (b) Cerebellum .Explanation: The triad of intention tremor, scanning speech, and nystagmus (Charcot's neurologic triad) indicates cerebellar dysfunction.

Q75. (b) Tuberous sclerosis .Explanation: Tuberous sclerosis presents with the clinical triad of seizures, ash-leaf spots (hypopigmentation), and subependymal nodules.

Q76. (c) Dengue fever .Explanation: Southeast Asian travelers presenting with high fever, retro-orbital pain, and rash likely have dengue fever.

Q77. (b) Hypoglycemia in a well-fed patient .Explanation: Hypoglycemia in falciparum malaria is typically associated with quinine therapy or starvation, not seen in well-nourished individuals.

Q78. (b) Increased fibrinogen .Explanation: DIC is a consumptive process; fibrinogen levels decrease as it is used up in widespread clot formation.

Q79. (b) Lactulose .Explanation: Lactulose is the first-line pharmacotherapy for hepatic encephalopathy as it reduces intestinal ammonia absorption.

Q80. (d) Spironolactone .Explanation: Spironolactone is a potassium-sparing diuretic that carries a risk of hyperkalemia.

Q81. (c) Pulsus paradoxus .Explanation: Pulsus paradoxus is a classic sign of cardiac tamponade rather than constrictive pericarditis.

Q82. (a) Hypertrophic obstructive cardiomyopathy (HOCM) .Explanation: Squatting increases afterload and preload, which reduces the outflow obstruction in HOCM and decreases the murmur intensity.

Q83. (b) Right bundle branch block .Explanation: RBBB delays right ventricular contraction, causing a widened split of the second heart sound (S2).

Q84. (c) Right coronary artery .Explanation: ST elevation in leads II, III, and aVF indicates an inferior wall MI, usually caused by occlusion of the right coronary artery.

Q85. (b) Pulmonary tuberculosis .Explanation: Upper lobe cavitory lesions and hemoptysis in a young adult are classic presentations of pulmonary TB.

Q86. (b) Copious purulent sputum .Explanation: Bronchiectasis is defined by the chronic production of large volumes of purulent sputum due to irreversibly dilated airways.

Q87. (c) Polysomnography .Explanation: Polysomnography (a formal sleep study) is the gold standard for confirming a diagnosis of obstructive sleep apnea.

Q88. (c) Anti-centromere antibody .Explanation: Anti-centromere antibodies are associated with limited systemic sclerosis (CREST syndrome), not typically SLE.

Q89. (b) Systemic lupus erythematosus .Explanation: The presence of fatigue, joint pain, proteinuria, and a positive ANA is highly suggestive of SLE.

Q90. (b) Anti-Smith antibody .Explanation: Anti-Smith (Sm) antibodies are the most specific serologic marker for systemic lupus erythematosus.

Q91. (b) Behçet's disease .Explanation: Behçet's disease is characterized by the clinical triad of recurrent oral ulcers, genital ulcers, and uveitis.

Q92. (b) Symmetrical distal interphalangeal joint involvement .Explanation: Rheumatoid arthritis typically affects the proximal joints (MCP, PIP) and spares the distal interphalangeal (DIP) joints.

Q93. (b) Ankylosing spondylitis .Explanation: Heel pain (enthesitis) and morning stiffness in a young man are hallmark symptoms of ankylosing spondylitis.

Q94. (d) Heat intolerance .Explanation: Heat intolerance is a symptom of hyperthyroidism; hypothyroidism causes cold intolerance.

Q95. (b) Exophthalmos .Explanation: Exophthalmos (proptosis) is an autoimmune manifestation specific to Graves' disease.

Q96. (b) Malignancy-associated hypercalcemia .Explanation: In a hospital setting, malignancy is the most common cause of significant hypercalcemia.

Q97. (b) Ectopic ACTH production .Explanation: Ectopic ACTH production (e.g., from small cell lung cancer) typically does not suppress with high-dose dexamethasone.

Q98. (b) Microcytosis .Explanation: Iron deficiency anemia is characterized by small red blood cells (microcytosis) and low ferritin.

Q99. (c) Prothrombin complex concentrate (PCC) .Explanation: PCC is the preferred immediate treatment for reversing the effects of warfarin in the setting of active bleeding.

Q100. (c) Low unconjugated bilirubin .Explanation: Hemolytic anemia leads to an increase in unconjugated bilirubin; low levels are not a feature.

Q101. (c) Lead poisoning .Explanation: Lead poisoning inhibits the enzyme nucleotidase, leading to the aggregation of ribosomal RNA, seen as basophilic stippling.

Q102. (b) Parathyroid hormone (PTH) .Explanation: In CKD, high phosphate and low calcium stimulate the parathyroid glands to increase PTH secretion (secondary hyperparathyroidism).

Q103. (c) Hematuria with RBC casts .Explanation: Hematuria with RBC casts indicates glomerular inflammation (nephritic syndrome) rather than nephrotic syndrome.

Q104. (b) Pulmonary embolism .Explanation: Nephrotic syndrome is a pro-thrombotic state, significantly increasing the risk of pulmonary embolism.

Q105. (c) Peritonitis .Explanation: Bacterial peritonitis is the most common and significant complication associated with peritoneal dialysis.

Q106. (c) Western blot .Explanation: While ELISA is used for screening, the Western blot (or modern equivalents) is the confirmatory test for HIV in adults.

Q107. (c) Bacterial meningitis .Explanation: The combination of low glucose, high protein, and neutrophilic predominance in the CSF is diagnostic of bacterial meningitis.

Q108. (b) Syphilis .Explanation: Primary syphilis typically presents with a single, painless chancre and painless regional lymphadenopathy.

Q109. (c) Mucormycosis .Explanation: Black nasal discharge (eschar) and facial pain in a diabetic patient are classic signs of invasive mucormycosis.

Q110. (b) Mantoux test is positive .Explanation: Latent TB infection is defined by a positive screening test (Mantoux/IGRA) with no clinical or radiographic evidence of active disease.

Q111. (c) Leukocytosis .Explanation: Dengue typically causes leukopenia (low WBC); leukocytosis would be an atypical finding.

Q112. (b) Oral glucose suppression test .Explanation: The oral glucose suppression test is the gold standard for confirming autonomous growth hormone secretion in acromegaly.

Q113. (d) Hypopituitarism .Explanation: Hyperpigmentation is caused by high ACTH levels; hypopituitarism results in low ACTH and no skin darkening.

Q114. (b) Myotonic dystrophy .Explanation: Myotonic dystrophy is characterized by myotonia (difficulty releasing a grip), cataracts, and muscle wasting.

Q115. (c) Myasthenia gravis .Explanation: Myasthenia gravis presents with fatigable muscle weakness, commonly affecting the extraocular muscles first.

Q116. (b) Intention tremor .Explanation: A resting tremor is characteristic of Parkinson's disease, whereas an intention tremor indicates cerebellar disease.

Q117. (b) Ethosuximide .Explanation: Ethosuximide is the specific first-line treatment for childhood absence seizures.

Q118. (b) Delusions .Explanation: Delusions are "positive" symptoms of schizophrenia; "negative" symptoms include deficits like avolition and alogia.

Q119. (c) Thought control .Explanation: Thought control (or passivity) is a delusion where the patient believes their thoughts are being governed by an external force.

Q120. (c) Haloperidol .Explanation: Haloperidol is an antipsychotic used to treat acute mania, but it is not classified as a long-term mood stabilizer like Lithium or Valproate.

Q121. (b) Generalised anxiety disorder (GAD) .Explanation: GAD is defined by persistent, excessive worry about multiple life events for a duration of at least six months.

Q122. (c) Fluctuating attention .Explanation: Fluctuating levels of consciousness and attention are hallmarks of delirium, whereas attention remains relatively stable in dementia until late stages.

Q123. (b) Delusion of persecution .Explanation: A belief that one is being followed or recorded by agents is a classic delusion of persecution.

Q124. (d) Absence of anxiety .Explanation: Anxiety is a core feature of OCD that drives the performance of compulsive rituals.

Q125. (c) Bipolar disorder .Explanation: A patient with a history of mania who is currently depressed meets the criteria for bipolar disorder.

Q126. (c) Dermatitis herpetiformis .Explanation: Dermatitis herpetiformis is a chronic blistering skin condition highly associated with gluten-sensitive enteropathy (celiac disease).

Q127. (c) Anti-Scl-70 (Anti-topoisomerase I) .Explanation: Anti-Scl-70 is the specific marker for the diffuse cutaneous form of systemic sclerosis.

Q128. (c) Chlamydia trachomatis .Explanation: Reactive arthritis is a sterile joint inflammation that often follows a urogenital infection with Chlamydia.

Q129. (b) Ulcerative colitis .Explanation: Crypt abscesses and a significant loss of goblet cells are characteristic histologic findings in ulcerative colitis.

Q130. (c) Hydrogen breath test .Explanation: The hydrogen breath test is the standard non-invasive method for diagnosing carbohydrate malabsorption, including lactose intolerance.

Q131. (c) Acute pancreatitis .Explanation: Severe epigastric pain radiating to the back accompanied by significantly elevated serum amylase levels is diagnostic of acute pancreatitis.

Q132. (d) Acute cholecystitis .Explanation: Portal hypertension causes splenomegaly, ascites, and varices; acute cholecystitis is an inflammatory condition of the gallbladder and is not a complication of portal hypertension.

Q133. (c) Hepatic encephalopathy .Explanation: Asterix (flapping tremor) in the setting of chronic liver disease indicates hepatic encephalopathy.

Q134. (b) Primary biliary cholangitis .Explanation: Anti-mitochondrial antibodies (AMA) are found in over 90% of patients with primary biliary cholangitis.

Q135. (c) Nocturnal diarrhea .Explanation: IBS is a functional disorder; nocturnal diarrhea is an "alarm symptom" that suggests an underlying organic disease.

Q136. (c) Alpha-fetoprotein (AFP) .Explanation: AFP is the most widely used and specific tumor marker for the surveillance and diagnosis of hepatocellular carcinoma.

Q137. (b) Lactulose .Explanation: Lactulose is used immediately in hepatic encephalopathy to lower blood ammonia levels.

Q138. (d) Thiamine (Vitamin B1) .Explanation: Thiamine deficiency is common in chronic alcoholics and can lead to serious neurological complications like Wernicke-Korsakoff syndrome.

Q139. (b) Transmural inflammation .Explanation: Crohn's disease is characterized by transmural inflammation (affecting all layers of the wall), whereas ulcerative colitis only affects the mucosa.

Q140. (d) Psoriasis .Explanation: While IBD has many extraintestinal manifestations, psoriasis is a distinct dermatologic condition not typically linked directly to IBD.

Q141. (b) Hypomagnesemia .Explanation: Chronic use of proton pump inhibitors (PPIs) can impair the intestinal absorption of magnesium, leading to hypomagnesemia.

Q142. (b) Gastroesophageal reflux disease (GERD) .Explanation: Barrett's esophagus is a metaplastic complication of chronic acid exposure due to long-standing GERD.

Q143. (c) Midgut carcinoid tumor .Explanation: Carcinoid syndrome is most commonly associated with midgut carcinoid tumors that have metastasized to the liver.

Q144. (c) Bence Jones proteinuria .Explanation: The excretion of monoclonal light chains in the urine, known as Bence Jones proteins, is a diagnostic hallmark of multiple myeloma.

Q145. (c) Lymphadenopathy .Explanation: Lymphadenopathy is not a feature of aplastic anemia and should prompt consideration of a lymphoproliferative disorder.

Q146. (c) INR (International Normalized Ratio) .Explanation: The INR is the standard laboratory measurement used to monitor and adjust the dosage of warfarin.

Q147. (b) Chronic myeloid leukemia .Explanation: The Philadelphia chromosome is the cytogenetic hallmark found in nearly all cases of CML.

Q148. (b) Vitamin B12 .Explanation: Deficiency of Vitamin B12 or folic acid leads to the development of megaloblastic anemia.

Q149. (c) Elevated MCV .Explanation: Thalassemia is a microcytic anemia (low MCV); an elevated MCV (macrocytosis) would be inconsistent with this diagnosis.

Q150. (c) Elliptocytes .Explanation: Hereditary spherocytosis is characterized by spherical RBCs; elliptocytes are the feature of a different genetic condition (hereditary elliptocytosis).

Q151. (a) Post-splenectomy state .Explanation: Howell-Jolly bodies are DNA remnants in RBCs normally removed by the spleen; they appear in the blood after a splenectomy.

Q152. (b) Visceral leishmaniasis (kala-azar) .Explanation: Kala-azar is endemic in Bihar and presents with the clinical features of fever, splenomegaly, and pancytopenia.

Q153. (c) Liposomal amphotericin B .Explanation: A single high dose of liposomal amphotericin B is the current first-line treatment for kala-azar in India.

Q154. (c) Source reduction .Explanation: The primary strategy for controlling the Aedes mosquito and preventing dengue is the elimination of stagnant water breeding sites (source reduction).

Q155. (c) Odds ratio is the measure of association .Explanation: Case-control studies allow for the calculation of the odds ratio to determine the strength of association between an exposure and a disease.

Q156. (c) MMR .Explanation: Live vaccines like MMR are generally contraindicated during pregnancy due to the theoretical risk of infecting the fetus.

Q157. (b) Case detection rate .Explanation: The case detection rate is a vital indicator for monitoring the success and reach of tuberculosis control programs.

Q158. (b) Weekly reporting of specific diseases .Explanation: The IDSP in India utilizes a system of weekly reporting to track and respond to disease outbreaks.

Q159. (c) Positive predictive value decreases .Explanation: As the prevalence of a disease in a population decreases, the likelihood that a positive test result is a "true positive" (PPV) also decreases.

Q160. (c) Specialised surgical care .Explanation: The Alma-Ata declaration defined primary health care as essential, basic care; specialized surgery belongs to the tertiary level of health services.

Q161. (c) Protection of unvaccinated individuals due to high immunization coverage .Explanation: Herd immunity occurs when a large portion of a population is immune, thereby limiting the spread of a pathogen and protecting those who are susceptible.

Q162. (d) W, Y .Explanation: Promoters determine which specific splice variants are expressed; the combination of W and Y leads to the production of protein A.

Q163. (a) Ectopic ureter .Explanation: A ureter that opens distal to the bladder neck (ectopic) causes continuous dripping, though the bladder can still fill and empty normally.

Q164. (b) 1, 2, 3, and 4 .Explanation: Ketosis in Type 1 DM is a complex metabolic state involving increased fat mobilization, increased beta-oxidation, and impaired acetyl CoA entry into the Krebs cycle.

Q165. (c) Fissured .Explanation: The image displays linear cracks in the skull vault characteristic of a fissured fracture.

Q166. (c) Zidovudine + Lamivudine + Indinavir .Explanation: For high-risk needlestick exposures involving HIV, a three-drug regimen including a protease inhibitor is recommended for PEP.

Q167. (c) Datura seeds .Explanation: The image shows black, kidney-shaped seeds characteristic of the poisonous Datura plant.

Q168. (b) Maternal deaths per 100,000 live births .Explanation: The maternal mortality ratio is calculated using 100,000 live births as the denominator.

Q169. (b) Marbling .Explanation: Marbling is a late postmortem change where the patterns of the superficial veins become visible as dark greenish-blue lines.

Q170. (b) ₹500 is given per month .Explanation: The Nikshay Poshan Yojana provides a monthly financial incentive of ₹500 to TB patients for nutritional support.

Q171. (b) Toxoid .Explanation: The diphtheria vaccine is a toxoid, which is an inactivated bacterial toxin that retains its immunogenicity.

Q172. (a) Echinococcus granulosus .Explanation: The image shows a classic unilocular hydatid cyst in the liver, which is caused by the larval stage of *E. granulosus*.

Q173. (b) B .Explanation: In the ELISA diagram, B points to the enzyme-linked secondary antibody used to detect the target antigen.

Q174. (a) Weight 55 kg .Explanation: According to Indian RDA standards, the reference woman is defined by a standard weight of 55 kg.

Q175. (b) 1% glutaraldehyde .Explanation: Glutaraldehyde is an industrial disinfectant; personal prevention of COVID-19 involves handwashing, masks, and alcohol-based sanitizers.

Q176. (b) B .Explanation: On a standard light microscope, the condenser is located directly beneath the stage (labeled B).

Q177. (d) Blue .Explanation: According to BMW management rules, metallic implants like pacemakers are categorized as "glassware/metallic" waste and disposed of in blue-labeled containers.

Q178. (a) Tzanck cells .Explanation: A Tzanck smear revealing multinucleated giant cells is used for the rapid diagnosis of herpesvirus infections.

Q179. (b) Zika virus .Explanation: Transplacental Zika virus infection is well-known for causing severe fetal neurodevelopmental defects, primarily microcephaly.

Q180. (b) Friedman test .Explanation: The Friedman test is a non-parametric statistical method used to analyze differences between groups when the same subjects are measured multiple times.

Q181. (c) Factor XII .Explanation: Factor XII (Hageman factor) deficiency significantly prolongs clotting time in the lab (aPTT), but does not cause bleeding problems in the living body.

Q182. (b) Somatic hypermutation .Explanation: Affinity maturation is the process by which B cells produce antibodies with increased binding strength through somatic hypermutation in germinal centers.

Q183. (a) FeSO₄ + Vitamin C + Folate + Vitamin B12 .Explanation: The standard oral prophylactic regimen for anemia at the primary care level includes iron and folic acid, often combined with vitamin C to enhance iron absorption.

Q184. (d) Ascaris lumbricoides .Explanation: The image shows large, cylindrical worms characteristic of the common human roundworm, *Ascaris lumbricoides*.

Q185. (d) Zollinger-Ellison syndrome .Explanation: Parietal cells produce intrinsic factor (essential for B12 absorption); their absence leads to B12 deficiency but is not a cause of Zollinger-Ellison syndrome, which is caused by a gastrin-secreting tumor.

Q186. (c) Poisson distribution .Explanation: The Poisson distribution is used to calculate the probability of a specific number of independent events occurring within a fixed interval of time or space.

Q187. (a) Anti-CTLA-4 antibody is a new modality in the treatment of advanced cancers .Explanation: Immune checkpoint inhibitors, such as anti-CTLA-4 antibodies, are used to block the "brakes" of the immune system to help it recognize and destroy cancer cells.

Q188. (b) VVM (Vaccine Vial Monitor) .Explanation: The VVM is a heat-sensitive label placed on vaccine vials that changes color to indicate if the vaccine has been compromised by heat.

Q189. (d) Clot activator .Explanation: Red-topped blood collection tubes contain a clot activator to allow the serum to be separated for biochemical testing.

Q190. (1-d, 2-b, 3-c, 4-a) .Explanation: Silicosis is associated with crazy paving; Mesothelioma with malignant effusion; Caplan syndrome with coal workers; and Asbestosis with basal lung involvement.

Q191. (c) Caspase 9 .Explanation: Caspase 9 is the initiator caspase that is activated when it binds to the cytochrome c/APAF-1 complex (apoptosome) in the intrinsic pathway.

Q192. (d) Polycythemia vera .Explanation: The JAK2 V617F mutation is a major diagnostic criterion for polycythemia vera, found in over 95% of cases.

Q193. (b) 1, 2 and 3 .Explanation: Peutz-Jeghers syndrome is an autosomal dominant condition characterized by multiple hamartomatous GI polyps, STK11 mutations, and a specific arborizing smooth muscle pattern on histology.

Q194. (d) Vitamin B12 deficiency .Explanation: Vitamin B12 deficiency commonly presents with the clinical signs shown (e.g., hyperpigmented knuckles) along with fatigue and pallor.

Q195. (b) Frozen section .Explanation: Routine histological processing uses alcohols that dissolve fat; therefore, a frozen section must be used to preserve and visualize lipids in tissue.

Q196. (b) Diffuse alveolar damage .Explanation: The most common and characteristic histopathological lung finding in severe COVID-19 pneumonia is diffuse alveolar damage (DAD).

Q197. (d) Poor prognosis compared to classical HL .Explanation: Nodular lymphocyte–predominant Hodgkin lymphoma (NLPHL) generally has a very indolent course and a better prognosis than classical HL.

Q198. (d) Reverse Trendelenburg position .Explanation: In the reverse Trendelenburg position, the entire operating table is tilted so that the head is higher than the feet.

Q199. (d) Intracellular proteins .Explanation: The Gibbs-Donnan effect is primarily caused by the presence of large, negatively charged proteins inside the cell that cannot cross the semi-permeable membrane.

Q200. (a) 1, 2 and 3 .Explanation: In the case of a minor refusing examination after assault, the priority is to provide medical prophylaxis, inform the police as required by law, and document the refusal.