

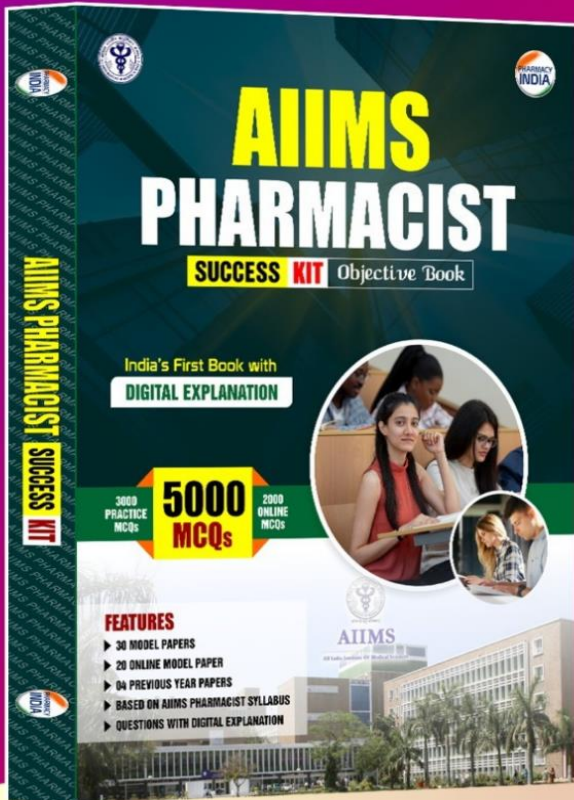


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Question 1:

Which of the ----- by Thromboplastin?

Correct Answer: (a) Ca^{2+}

Explanation:

1. The conversion of **Prothrombin to Thrombin** is a key step in the coagulation cascade.
2. **Thromboplastin** activates Factor X, which forms a complex with Factor V.
3. **Calcium ions (Ca^{2+})** play a crucial role in stabilizing and activating this complex, facilitating the conversion of Prothrombin into Thrombin.
4. Without **Ca^{2+}** , the Prothrombin activation process cannot occur, halting the coagulation pathway.

Reference: "Essentials of Medical Physiology" by K. Sembulingam, 8th Edition, Page 289.

Question 2:

Which ----- blood vessel?

Correct Answer: (a) Aorta

Explanation:

1. The **aorta** is the largest blood vessel in the body, both in diameter and length.
2. It arises from the **left ventricle** of the heart and distributes oxygen-rich blood to all parts of the body through systemic circulation.
3. Its walls are composed of **elastic tissue**, allowing it to handle high blood pressure generated by the heart.
4. It branches into major arteries that supply various regions of the body.

Reference: "Gray's Anatomy for Students" by Richard Drake, 4th Edition, Page 173.

Question 3:

The life ----- of RBC.

Correct Answer: (c) 120 days

Explanation:

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1. **Red Blood Cells (RBCs)** have an average lifespan of **120 days** in humans.
2. They circulate in the bloodstream, delivering **oxygen** to tissues and removing **carbon dioxide**.
3. After 120 days, aging RBCs are removed from circulation by the **spleen** (often called the "graveyard of RBCs") and the **liver**.
4. The process of removal involves **phagocytosis** by macrophages, recycling hemoglobin components like **iron** and **globin chains**.

Reference: "Guyton and Hall Textbook of Medical Physiology" by John E. Hall, 14th Edition, Page 460.

Question 4:

Which of the ----- of dietary fiber?

Correct Answer: (d) Agar

Explanation:

1. **Dietary fiber** includes indigestible plant materials like **cellulose, lignin, and pectin**.
2. These fibers contribute to gut health by promoting **regular bowel movements** and acting as a substrate for gut microbiota.
3. **Agar**, though derived from seaweed, is used as a gelling agent and is not classified as a dietary fiber in human nutrition.

Reference: "Modern Nutrition in Health and Disease" by Maurice E. Shils, 11th Edition, Page 1235.

Question 5:

Protein subunit ----- microtubules is?

Correct Answer: (b) Tubulin

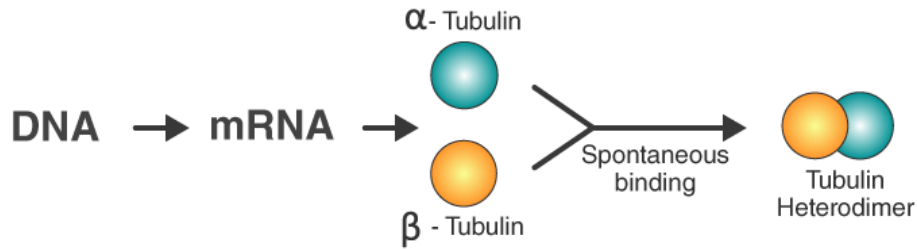
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- **Microtubules**, part of the cytoskeleton, are composed of **tubulin** protein dimers (α -tubulin and β -tubulin).
- They provide structural support, assist in **intracellular transport**, and play a critical role in **cell division** (mitotic spindle formation).

Reference: "Molecular Biology of the Cell" by Alberts et al., 6th Edition, Page 993.

Question 6:

Na^+ ----- is an example of:

Correct Answer: (c) Symport

Comparison-Table:

Transport Mechanism	Description	Example
Facilitated Diffusion	Passive movement via transport proteins	GLUT transporters
ATP-Driven Active Transport	Requires ATP to move substances against a gradient	Na^+/K^+ -ATPase pump
Symport	Coupled transport where two substances move together	Na^+-Glucose cotransporter
Antiport	Coupled transport where substances move in opposite directions	$\text{Na}^+/\text{Ca}^{2+}$ exchanger

Reference: "Principles of Membrane Biophysics" by Thomas W. Allen, 2nd Edition, Page 341.

Question 7:

Composition ----- is:

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Correct Answer: (d) All the above

Explanation:

- **Glass** is composed of **sand (silica)**, **soda ash (sodium carbonate)**, **limestone (calcium carbonate)**, and sometimes **cullet** (recycled glass).
- These ingredients are melted and fused at high temperatures to produce glass with desired properties.

Reference: "Materials Science and Engineering" by William D. Callister, 10th Edition, Page 672.

Question 8:

Which of the ----- barrier properties?

Correct Answer: (d) All the above

Explanation:

1. **Aclar:** Provides exceptional moisture and oxygen barrier.
2. **Cellophane:** Offers moderate moisture resistance but is biodegradable.
3. **Polyester:** Common in flexible packaging due to its strength and water resistance.

Reference: "Handbook of Packaging Materials" by G. L. Robertson, 2nd Edition, Page 215.

Question 9:

Which of the ----- starch product?

Correct Answer: (d) Sugar tab

Explanation:

- Commercially available starch products like **Sta-Rx 1500**, **Celutab**, and **Emdex** are used as binders or fillers in pharmaceutical formulations.
- **Sugar tab** is a tablet coating material, not a starch derivative.

Reference: "Pharmaceutical Dosage Forms and Drug Delivery Systems" by Ansel et al., 10th Edition, Page 423.

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Question 10:

Green ----- is a source of:

Correct Answer: (b) Type B Gelatin

Explanation:

1. **Type B Gelatin** is derived from **alkaline processing** of animal bones or hides, including green bones.
2. It is used in the manufacture of capsules, food products, and photographic films.

Reference: "The Theory and Practice of Industrial Pharmacy" by Lachman et al., 4th Edition, Page 296.

Question 11:

Friabilator ----- at:

Correct Answer: (d) 25 RPM

Explanation:

1. **Friabilator** measures the friability (mechanical strength) of tablets to ensure they can withstand handling.
2. As per the standard operating conditions, the drum of the friabilator rotates at **25 revolutions per minute (RPM)** for **4 minutes**, making a total of **100 revolutions**.
3. This test helps identify tablets that are prone to chipping or breaking.

Reference: "The Theory and Practice of Industrial Pharmacy" by Lachman et al., 4th Edition, Page 320.

Question 12:

The diameter ----- below. Choose the correct size.

Correct Answer: (a) 2 mm

Explanation:

1. The **disintegration test** ensures that tablets or capsules break apart within a specified time in simulated physiological conditions.

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- The mesh aperture size of **2 mm** allows the medium to interact effectively with the test sample, ensuring accurate results.

Reference: "Indian Pharmacopoeia 2018," Volume I, Page 183.

Question 13:

Tablets are ----- technique is called:

Correct Answer: (b) Coating by air suspension

Comparison Table:

Coating Technique	Description	Example
Air Suspension Coating	Uses an upward flow of air to suspend and coat tablets evenly with a solution sprayed from above.	Wurster Process
Spray-Pan Coating	Coating solution is sprayed onto tablets in a rotating pan.	Sugar-coating
Sealing before Sugar Coating	Involves an initial layer to prevent core damage before sugar-coating begins.	Moisture-sensitive tablets
Chamber Coating	General term for various techniques using a closed coating chamber.	Fluid bed coaters

Reference: "Theory and Practice of Industrial Pharmacy" by Lachman et al., 4th Edition, Page 564.

Question 14:

What is the ----- under the skin?

Correct Answer: (a) Subcutaneous

Explanation:

- Subcutaneous administration** involves injecting medication beneath the skin into the subcutaneous tissue.
- Common examples include **insulin** and certain vaccines, as the tissue allows for slow, sustained absorption.

Reference: "Clinical Pharmacology" by Bennett and Brown, 11th Edition, Page 69.

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Question 15:

Which of the ----- dosage form?

Correct Answer: (d) Transdermal implant

Explanation:

1. **Parenteral dosage forms** bypass the gastrointestinal tract and are administered through routes like intravenous, intramuscular, or subcutaneous.
2. **Transdermal implants** are considered a parenteral form as they deliver drugs directly into the body system over a prolonged period.

Reference: "Aulton's Pharmaceutics: The Design and Manufacture of Medicines" by Michael E. Aulton, 4th Edition, Page 447.

Question 16:

Non-ionic ----- vesicles is:

Correct Answer: (c) Niosome

Explanation:

1. **Niosomes** are non-ionic surfactant-based vesicles used in drug delivery systems.
2. They enhance the bioavailability of drugs and protect them from degradation.
3. Niosomes differ from liposomes as they use **non-ionic surfactants** instead of phospholipids.

Reference: "Novel Drug Delivery Systems" by Yie W. Chien, 2nd Edition, Page 197.

Question 17:

As per GMP, the ----- for injection is:

Correct Answer: (d) 10.0 ppm

Explanation:

1. **Water for Injection (WFI)** is held to stringent standards to ensure it is suitable for pharmaceutical use, particularly in parenteral formulations.

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2. As per **GMP guidelines**, the maximum allowed solid content in WFI is **10.0 ppm**. This ensures the water is of high purity but allows trace amounts of solid particles.
3. This limit prevents any interference with the safety or efficacy of the pharmaceutical products.

Reference: "Good Manufacturing Practices for Pharmaceuticals" by Sidney H. Willig, 6th Edition, Page 105.

Question 18:

Dose dumping ----- **formulation of:**

Correct Answer: (d) Controlled release formulation

Explanation:

1. **Dose dumping** refers to the rapid release of a drug from a formulation intended for slow release.
2. It can occur due to formulation issues or external factors like alcohol consumption, which can compromise the integrity of controlled-release mechanisms.

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 1021.

Question 19:

RBCs can ----- **providing energy:**

Correct Answer: (d) Glucose

Explanation:

1. **Red Blood Cells** lack mitochondria and depend exclusively on **glucose** for energy through glycolysis.
2. Glucose is metabolized into pyruvate, producing ATP, which supports RBC survival and function.

Reference: "Biochemistry" by U. Satyanarayana, 5th Edition, Page 157.

Question 20:

Opium ----- **ring system is:**

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Correct Answer: (d) Papaverine

Explanation:

1. **Papaverine** belongs to the **isoquinoline alkaloid** group, distinct from other opium alkaloids like morphine and codeine, which have a phenanthrene structure.
2. Papaverine is a smooth muscle relaxant often used in vascular spasms.

Reference: "Medicinal Chemistry" by Ashutosh Kar, 6th Edition, Page 412.

Question 21:

Pharmacy Act ----- in:

Correct Answer: (a) 1948

Explanation:

1. The **Pharmacy Act, 1948**, was enacted to regulate the profession of pharmacy in India.
2. It provides guidelines for the **education and registration of pharmacists** to ensure the safe and ethical distribution of medications.
3. The Act also established the **Pharmacy Council of India (PCI)** as the regulatory body.

Reference: "The Pharmacy Act, 1948," Bare Act with Short Notes, Universal Law Publishing.

Question 22:

How many ----- of the state?

Correct Answer: (d) 6

Explanation:

1. According to **Section 19** of the **Pharmacy Act, 1948**, **six members** are elected by registered pharmacists of the state to form part of the State Pharmacy Council.
2. These members represent the interests of pharmacists and contribute to the regulation and oversight of pharmacy practices in the state.

Reference: "The Pharmacy Act, 1948," Bare Act with Commentary, Universal Law Publishing, Section 19.

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Question 23:

Crocin is sold ----- schedule:

Correct Answer: (c) W

Explanation:

1. **Crocin**, which contains **paracetamol**, is classified under **Schedule W** in India.
2. Schedule W drugs are designated for distribution through prescription or over-the-counter, depending on their classification in different states or regions.
3. The categorization under Schedule W ensures streamlined regulation and proper tracking of these medications.

Reference: "Drugs and Cosmetics Act and Rules," Professional Book Publishers, Page 223.

Question 24:

Pharmacy Council ----- functions except:

Correct Answer: (d) To prescribe drugs

Explanation:

1. The **Pharmacy Council of India (PCI)** is responsible for:
 - Regulating **minimum educational standards** for pharmacists.
 - Prescribing the minimum qualification required for registration as a pharmacist.
 - Maintaining the **Central Register of Pharmacists**.
2. It does not have the authority to **prescribe drugs**, as this is under the purview of other regulatory bodies like the **Drugs Controller General of India (DCGI)**.

Reference: "The Pharmacy Act, 1948," Bare Act, Section 10.

Question 25:

Dettol ----- under:

Correct Answer: (b) Schedule O

Explanation:

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1. **Dettol**, an antiseptic liquid, is classified under **Schedule O** of the Drugs and Cosmetics Rules, 1945.
2. Schedule O specifies the standards and requirements for **antiseptic and disinfectant preparations**.

Reference: "Drugs and Cosmetics Act and Rules," Professional Book Publishers, Page 315.

Question 26:

Schedule ----- about:

Correct Answer: (c) Requirements of factory premises for the manufacture of Ayurveda, Siddha, and Unani medicines

Explanation:

1. **Schedule T** under the Drugs and Cosmetics Rules, 1945, lays down the **Good Manufacturing Practices (GMP)** for **Ayurveda, Siddha, and Unani medicines**.
2. It covers requirements such as cleanliness, hygiene, and equipment specifications for manufacturing.

Reference: "Drugs and Cosmetics Act and Rules," Universal Law Publishing, Page 401.

Question 27:

CDL is ----- at:

Correct Answer: (a) Kolkata

Explanation:

1. The **Central Drugs Laboratory (CDL)** is located in **Kolkata**, West Bengal.
2. It is the apex laboratory under the **Drugs and Cosmetics Act, 1940**, responsible for testing and analysis of drugs, cosmetics, and medical devices.
3. It plays a pivotal role in ensuring the quality, safety, and efficacy of pharmaceutical products.

Reference: "Drugs and Cosmetics Act and Rules," Professional Book Publishers, Page 134.

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Question 28:

For Schedule ----- requirement is:

Correct Answer: (a) Symbol X given in red

Explanation:

1. **Schedule X drugs** are tightly regulated due to their potential for **abuse and addiction**.
2. These drugs require a **red-colored 'X' symbol** on the top-left corner of the label to differentiate them from other medications.

Reference: "Drugs and Cosmetics Act and Rules," Professional Book Publishers, Page 245.

Question 29:

What would ----- solution isotonic with blood?

Correct Answer: (c) 0.88%

Explanation:

1. An isotonic solution has the same **osmotic pressure** as blood, preventing water movement across cell membranes.
2. Sodium chloride concentration of **0.88%** is equivalent to the tonicity of blood plasma.

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 168.

Question 30:

Which method ----- potent substances?

Correct Answer: (c) Geometric dilution

Explanation:

1. **Geometric dilution** ensures the even distribution of **potent drugs** in a larger volume of excipients.
2. It is performed by mixing the potent substance with an equal amount of diluent repeatedly until homogeneous blending is achieved.

Reference: "Theory and Practice of Industrial Pharmacy" by Lachman et al., 4th Edition, Page 316.

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Question 31:

Meaning ----- is:

Correct Answer: (c) Slowly

Explanation:

1. The term '**lente**' is derived from Latin, meaning **slowly**.
2. It is often used in the context of **insulin preparations**, indicating a slow or prolonged onset and duration of action.

Reference: "Medical Dictionary for Health Professionals," Stedman's, 27th Edition, Page 763.

Question 32:

'SOS' ----- for:

Correct Answer: (d) When necessary

Explanation:

1. **SOS** is an abbreviation of the Latin phrase "**si opus sit**", meaning "**if there is a need**" or "**when necessary**".
2. It is commonly used in medical prescriptions to denote **as needed** dosing.

Reference: "Taber's Cyclopedic Medical Dictionary," 24th Edition, Page 2187.

Question 33:

Calculate the ----- is 50 mg.

Correct Answer: (a) 17 mg

Step-by-Step:

1. Use the **Clark's formula** for dose calculation based on body surface area (BSA):

$$\text{Child Dose} = \left(\frac{\text{BSA of child}}{\text{BSA of adult}} \right) \times \text{Adult Dose}$$

2. **BSA of an adult** is approximately 1.73 m².
3. Substituting values:

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$$\text{Child Dose} = \left(\frac{0.57}{1.73} \right) \times 50 = 16.48 \text{ mg} \approx 17 \text{ mg}$$

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 77.

Question 34:

Polio is ----- by:

Correct Answer: (b) Viral

Explanation:

1. **Polio** is caused by the **Poliovirus**, a member of the **Picornaviridae** family.
2. It is a highly infectious disease that can lead to paralysis by affecting the **central nervous system**.
3. Transmission occurs through the **fecal-oral route**.

Reference: "Medical Microbiology" by Murray et al., 9th Edition, Page 574.

Question 35:

BCG is ----- vaccine.

Correct Answer: (a) Live

Explanation:

1. **BCG (Bacillus Calmette-Guérin)** vaccine is a **live-attenuated vaccine** used to prevent tuberculosis.
2. It contains a weakened strain of **Mycobacterium bovis** that stimulates immunity without causing disease.

Reference: "Vaccines" by Plotkin et al., 7th Edition, Page 247.

Question 36:

ELISA ----- for:

Correct Answer: (a) AIDS

Explanation:

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1. **ELISA (Enzyme-Linked Immunosorbent Assay)** is a diagnostic test used to detect **HIV antibodies** in the blood.
2. It is widely used as an initial screening test for **AIDS (Acquired Immunodeficiency Syndrome)**.

Reference: "Medical Laboratory Science: Theory and Practice" by J.O. Baker, 2nd Edition, Page 353.

Question 37:

Which type of ----- aqueous solutions?

Correct Answer: (b) Absorption bases

Comparison Table:

Ointment Base Type	Description	Examples
Hydrocarbon Bases	Water-free, occlusive, not for aqueous solutions	Petrolatum
Absorption Bases	Can incorporate large amounts of water	Hydrophilic Petrolatum
Water-Soluble Bases	Completely water-soluble, non-greasy	PEG ointment
Anhydrous Bases	Contain no water, greasy	Lanolin

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 1004.

Question 38:

ICH safety ----- belongs to:

Correct Answer: (b) Genotoxicity studies

Explanation:

1. **ICH S2** focuses on **genotoxicity studies**, which assess the potential of a substance to damage genetic material (DNA).

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2. These studies are crucial for evaluating **carcinogenic and mutagenic risks** of pharmaceutical products.

Reference: "ICH Guidelines for Pharmaceuticals," Official ICH S2 Document, Page 12.

Question 39:

QA ----- as:

Correct Answer: (a) It is the sum total of the organized arrangements with the objective of ensuring that products will be of the quality required for their intended use.

Explanation:

1. **Quality Assurance (QA)** encompasses all planned and systematic activities implemented to ensure product quality.
2. It includes **validation, audits, and documentation** to maintain consistency in production.

Reference: "Good Manufacturing Practices for Pharmaceuticals" by Sidney H. Willig, 6th Edition, Page 35.

Question 40:

QC involves ----- except:

Correct Answer: (d) Efficacy

Explanation:

1. **Quality Control (QC)** focuses on **sampling, testing, and analysis** of materials to ensure compliance with specifications.
2. **Efficacy** is evaluated during **clinical trials**, not QC.

Reference: "Pharmaceutical Quality Assurance" by Manohar A. Potdar, 2nd Edition, Page 64.

Question 41:

Basic principles ----- include:

Correct Answer: (d) All of the above

Explanation:

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1. Validation ensures that processes and systems consistently produce products meeting **pre-determined specifications and quality attributes**.
2. Key principles include:
 - **Safety, quality, and efficacy** of products.
 - Incorporating quality into the product rather than relying on inspection alone.
 - Validating **critical steps** in manufacturing.

Reference: "Validation of Pharmaceutical Processes" by James Agalloco, 3rd Edition, Page 24.

Question 42:

The process of ----- powder is termed as:

Correct Answer: (d) Levigation

Explanation:

1. **Levigation** involves grinding a solid substance into a fine powder by triturating it with a small quantity of liquid.
2. This process is often used in the preparation of ointments and suspensions to achieve a smooth and uniform texture.
3. It differs from **trituration**, which does not involve liquid, and is primarily used for dry substances.

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 1128.

Question 43:

Which of the ----- true for alkaloids:

Correct Answer: (c) Have pKa less than 7

Explanation:

1. **Alkaloids** are organic compounds that typically:
 - Contain **nitrogen**.
 - Exhibit **stereoisomerism**.

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- Are soluble in **alcohol**.
2. They generally have a **basic pKa above 7**, contradicting the incorrect statement.

Reference: "Pharmacognosy" by Trease and Evans, 16th Edition, Page 187.

Question 44:

Water ----- of:

Correct Answer: (c) Mixture of PEG

Explanation:

1. **Polyethylene Glycol (PEG)** is a key component of water-soluble ointment bases.
2. These bases are non-greasy and easily washable, suitable for incorporating water-soluble drugs.

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 1005.

Question 45:

Water ----- is:

Correct Answer: (b) Non-sterile but pyrogen free

Explanation:

1. **Water for Injection (WFI)** is highly purified water that is **non-sterile** but must be **free from pyrogens** (substances that can cause fever).
2. It is used as a base for parenteral solutions, which are later sterilized during the manufacturing process.
3. The absence of pyrogens ensures the safety of injectable products without causing adverse immune reactions.

Reference: "Pharmaceutical Engineering" by Subrahmanyam CVS, 5th Edition, Page 341.

Question 46:

Which of the ----- not contain zinc:

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Correct Answer: (a) Regular pork insulin

Explanation:

1. **Regular pork insulin** is a short-acting insulin that does not include zinc, unlike formulations like Isophane insulin or Semilente insulin, which use zinc for extended action.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 1145.

Question 47:

Which of the ----- from binding sites:

Correct Answer: (a) Aspirin and Tolbutamide

Comparison Table:

Drugs	Mechanism	Effect
Aspirin and Tolbutamide	Displacement from plasma protein sites	Enhanced hypoglycemic effect of tolbutamide
Clofibrate and Warfarin	Protein displacement	Increased risk of bleeding
Sulphonamides and Bilirubin	Protein displacement	Risk of kernicterus in neonates

Reference: "Drug Interactions in Clinical Practice" by Lakshman Delgoda, 2nd Edition, Page 97.

Question 48:

All ----- are:

Correct Answer: (b) Complex lipopolysaccharide in nature

Explanation:

1. Antibodies, also known as **immunoglobulins**, are **complex lipopolysaccharides** that play a key role in the immune system by identifying and neutralizing foreign antigens.
2. They are produced by **B lymphocytes** and are specific to particular antigens.

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3. While many believe antibodies are purely protein in nature, their complexity often involves lipopolysaccharide components.

Reference: "Immunology" by Janeway et al., 8th Edition, Page 130.

Question 49:

The minimum ----- of a pharmacist is:

Correct Answer: (b) 18 years

Explanation:

1. The **Pharmacy Act, 1948**, specifies that an individual must be at least **18 years old** to register as a pharmacist.
2. This ensures the individual has completed the necessary qualifications and is legally competent.

Reference: "Pharmacy Act, 1948," Bare Act, Section 32.

Question 50:

The **Drugs (Prices Control)** ----- to the Central Government under:

Correct Answer: (a) The Essential Commodities Act 1955

Explanation:

1. The **Drugs (Prices Control) Order (DPCO)** regulates the prices of essential medicines.
2. It derives its authority from the **Essential Commodities Act, 1955**, empowering the government to control the production, supply, and distribution of essential goods.

Reference: "DPCO Guidelines," Government of India, Official Gazette, Page 4.

Question 51:

If "Analgin" is ----- will be called:

Correct Answer: (c) Misbranded drug

Explanation:

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1. A **misbranded drug** refers to a product that is falsely labeled or marketed in a way that misrepresents its identity.
2. Importing **Analgin** and labeling it as **Aspirin** falls under the definition of **misbranding**, as per the **Drugs and Cosmetics Act, 1940**.
3. Misbranding is a regulatory violation intended to prevent the public from being misled about the drug's nature or purpose.

Reference: "Drugs and Cosmetics Act and Rules," Professional Book Publishers, Page 175.

Question 52:

Expiry period -----, **cannot exceed:**

Correct Answer: (d) 60 months from the date of manufacture

Explanation:

1. As per **Schedule P** of the **Drugs and Cosmetics Rules, 1945**, the expiry period for certain drug formulations can extend up to **60 months** from the date of manufacture.
2. This provision ensures the stability and effectiveness of long-term formulations under controlled conditions.

Reference: "Drugs and Cosmetics Act and Rules," Universal Law Publishing, Page 231.

Question 53:

The action ----- **by:**

Correct Answer: (d) Protamine sulphate

Explanation:

1. **Heparin**, an anticoagulant, inhibits thrombin and clotting factor Xa.
2. **Protamine sulphate**, a strongly basic protein, neutralizes heparin's anticoagulant effect by forming a stable complex with it.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 707.

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Question 54:

Monoamine ----- of:

Correct Answer: (a) Serotonin

Explanation:

1. **Monoamine oxidase (MAO)** is an enzyme that metabolizes **monoamines** such as serotonin, dopamine, and norepinephrine.
2. MAO breaks serotonin into **5-HIAA (5-Hydroxyindoleacetic acid)**, its inactive metabolite.

Reference: "Biochemistry" by U. Satyanarayana, 5th Edition, Page 303.

Question 55:

All of ----- except:

Correct Answer: (a) It increases appetite

Explanation:

1. **Histamine** plays a role in:
 - **Allergic reactions** (causes itching and bronchoconstriction).
 - **Gastric acid secretion** in the stomach.
 - Causing **inflammation** by increasing capillary permeability.
2. It does not increase appetite; this function is associated with other neurotransmitters like **ghrelin**.

Reference: "Basic and Clinical Pharmacology" by Bertram Katzung, 14th Edition, Page 284.

Question 56:

N-acetyl----- metabolite of:

Correct Answer: (c) Paracetamol

Step-by-Step:

1. **Paracetamol** undergoes metabolism in the liver.
2. A small fraction is converted to the toxic metabolite **N-acetyl-P-benzoquinoneimine (NAPQI)** by **CYP450 enzymes**.

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3. Excess NAPQI, due to overdose or glutathione depletion, causes **hepatic necrosis**.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 228.

Question 57:

A Chinese tree, ----- treating ovarian cancer is:

Correct Answer: (d) Topotecan

Explanation:

1. **Topotecan** is a **semi-synthetic derivative of camptothecin**, used to treat **ovarian and lung cancers**.
2. It inhibits **topoisomerase I**, an enzyme critical for DNA replication, causing cell death in rapidly dividing cancer cells.

Reference: "Pharmacognosy and Pharmacobiotechnology" by Ashutosh Kar, 2nd Edition, Page 521.

Question 58:

An inorganic ----- bipolar depression is:

Correct Answer: (b) Lithium

Explanation:

1. **Lithium** is the first-line treatment for **bipolar disorder**, used to prevent both manic and depressive episodes.
2. It acts by stabilizing neuronal excitability and modulating **neurotransmitter release**.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 484.

Question 59:

Autoimmunity ----- to:

Correct Answer: (a) An automatic trigger of the immune system directed against a specific pathogen

Explanation:

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1. **Autoimmunity** occurs when the immune system reacts inappropriately and becomes **hyperactive**, leading to the destruction of normal cells.
2. This reaction is directed against the body's tissues, perceiving them as pathogens.
3. It is a mechanism that underlies several autoimmune diseases such as **Graves' disease**, **multiple sclerosis**, and **Hashimoto's thyroiditis**.

Reference: "Immunology" by Janeway et al., 9th Edition, Page 340.

Question 60:

The drug ----- by a pharmacokinetic mechanism is:

Correct Answer: (c) Quinidine

Explanation:

1. **Quinidine** inhibits the **P-glycoprotein efflux pump**, reducing the clearance of **digoxin**.
2. This interaction increases digoxin's plasma concentration, requiring dose adjustments to avoid toxicity.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 350.

Question 61:

A drug used ----- keratitis is:

Correct Answer: (b) Trifluridine

Explanation:

1. **Trifluridine** is an antiviral medication effective against **Herpes Simplex Virus (HSV)**.
2. It inhibits **viral DNA synthesis**, thereby preventing viral replication in the cornea.
3. It is the preferred treatment for **Herpes keratitis**, a condition that can cause corneal ulcers.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 791.

Question 62:

A macrolide ----- agent is:

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Correct Answer: (c) Tacrolimus

Explanation:

1. **Tacrolimus** is a macrolide derived from **Streptomyces tsukubaensis**.
2. It acts by inhibiting **calcineurin**, a critical enzyme in T-cell activation, leading to immunosuppression.
3. It is primarily used in preventing organ transplant rejection.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 1347.

Question 63:

Isoniazid ----- agent that:

Correct Answer: (a) Requires pyridoxine supplementation

Step-by-Step:

1. **Isoniazid** is a first-line drug for tuberculosis that inhibits **mycolic acid synthesis**, essential for bacterial cell walls.
2. It can cause **peripheral neuropathy** due to pyridoxine (vitamin B6) deficiency.
3. **Pyridoxine supplementation** is necessary to prevent this adverse effect, especially in at-risk populations like alcoholics and diabetics.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 786.

Question 64:

A woman was ----- be the best choice for the patient?

Correct Answer: (b) Erythromycin

Explanation:

1. Since the patient is allergic to penicillin, a **macrolide antibiotic** like **Erythromycin** is the preferred alternative for treating **Streptococcus pneumoniae**.
2. Erythromycin inhibits **bacterial protein synthesis** by binding to the 50S ribosomal subunit.

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Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 807.

Question 65:

Which of the ----- disease?

Correct Answer: (c) Bromocriptine

Comparison Table:

Drug	Mechanism	Usage
Ergotamine	Alpha-adrenergic agonist	Migraine treatment
Ergometerine	Uterine contraction inducer	Postpartum hemorrhage
Bromocriptine	Dopamine agonist	Parkinson's disease
Dihydro-ergotamine	Vasoconstrictor	Migraine

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 482.

Question 66:

5-HT_{1A} ----- anxiolytic is:

Correct Answer: (b) Buspirone

Explanation:

1. **Buspirone** is a partial agonist at the **5-HT_{1A} receptor**, contributing to its anxiolytic effects.
2. It is used for **generalized anxiety disorder (GAD)** and lacks sedative or dependency potential seen in benzodiazepines.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 447.

Question 67:

Flumazenil ----- overdose as:

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Correct Answer: (b) Benzodiazepine antagonist

Explanation:

1. **Flumazenil** is a competitive antagonist at the **benzodiazepine-binding site** on the GABA-A receptor.
2. It rapidly reverses sedation, respiratory depression, and other effects of benzodiazepine overdose.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 397.

Question 68:

Which ingredient ----- agent and an emollient?

Correct Answer: (a) Cetyl alcohol

Explanation:

1. **Cetyl alcohol** serves as a **thickening agent**, giving the cream its consistency.
2. It also acts as an **emollient**, providing a smooth texture and reducing skin dryness.

Reference: "Remington: The Science and Practice of Pharmacy," 22nd Edition, Page 1013.

Question 69:

Reye's ----- side effect of:

Correct Answer: (a) Aspirin

Explanation:

1. **Reye's syndrome** is a rare but serious condition causing **liver damage and encephalopathy**, associated with **aspirin use in children** with viral infections.
2. Its mechanism involves mitochondrial dysfunction.

Reference: "Goodman & Gilman's: The Pharmacological Basis of Therapeutics," 13th Edition, Page 846.

Question 70:

Which of the ----- regarding NSAIDs?

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Correct Answer: (d) NSAIDs cause brain hemorrhage

Explanation:

1. **NSAIDs** are associated with side effects like:
 - **Peptic ulceration** (due to gastric irritation).
 - **Closure of ductus arteriosus** in fetal circulation.
 - **Delay in labor** by inhibiting prostaglandin synthesis.
2. Brain hemorrhage is not a common adverse effect of NSAIDs.

Reference: "Essentials of Medical Pharmacology" by K.D. Tripathi, 8th Edition, Page 193.

Question 71:

Botanical ----- is:

Correct Answer: (d) None of these

Explanation:

1. The botanical source of cotton is **Gossypium species**, including **Gossypium hirsutum** and **Gossypium barbadense**. However, these specific options, including **Populus nigra**, **Linum usitatissimum**, and others listed, do not include the correct botanical source for cotton.
2. Since none of the listed options correctly represent the source, the answer is "**None of these.**"

Reference: "Pharmacognosy" by Trease and Evans, 16th Edition, Page 326.

Question 72:

Gudmar ----- the:

Correct Answer: (b) Leaves of *Gymnema sylvestre*

Explanation:

1. **Gudmar**, known as the "sugar destroyer," is derived from the **leaves of *Gymnema sylvestre***.
2. It is traditionally used in **Ayurveda** to manage **diabetes** by reducing sugar absorption in the intestine.

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Reference: "Pharmacognosy" by C.K. Kokate, 52nd Edition, Page 450.

Question 73:

From callus, ----- by:

Correct Answer: (b) Increasing Auxin amount than that of Cytokinin

Explanation:

1. **Auxins** are plant growth regulators that promote **root formation** and elongation.
2. **Cytokinins**, on the other hand, favor **shoot development**.
3. An increased **auxin-to-cytokinin ratio** is essential for enhancing **root growth** from a callus in tissue culture experiments.
4. Adding **gibberellins** or using no hormones will not effectively stimulate root growth.

Reference: "Plant Tissue Culture: Techniques and Experiments" by Roberta H. Smith, 3rd Edition, Page 153.

Question 74:

The adulterant ----- leaves is:

Correct Answer: (a) *Symphytum officinale*

Explanation:

1. **Purple Foxglove (*Digitalis purpurea*)** leaves, which are used for their cardiac glycosides, are sometimes adulterated with leaves of ***Symphytum officinale*** (commonly known as comfrey).
2. This adulteration is significant because ***Symphytum officinale*** contains **pyrrolizidine alkaloids**, which can cause toxicity and do not possess the cardiac activity of digitalis.
3. Adulteration compromises the therapeutic use of genuine digitalis preparations.

Reference: "Pharmacognosy" by Trease and Evans, 16th Edition, Page 198.

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Question 75:

Narcotine ----- moieties:

Correct Answer: (b) Benzyl isoquinoline

Explanation:

1. **Narcotine**, an alkaloid derived from opium, belongs to the **benzyl isoquinoline** group.
2. It lacks narcotic effects but exhibits **antitussive properties**.

Reference: "Pharmacognosy" by C.K. Kokate, 52nd Edition, Page 562.

Question 76:

A boat travels ----- in still water?

Correct Answer: (c) 9 km/h

Step-by-Step:

1. Let the speed of the boat in still water be B and the speed of the stream be S.
2. The effective speed upstream = $B - S = 6$ km/h.
3. The effective speed downstream = $B + S = 12$ km/h.
4. Adding the two equations: $2B = 6 + 12 \Rightarrow B = 9$ km/h

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 412.

Question 77:

A shopkeeper ----- gain or loss?

Correct Answer: (a) 1% loss

Explanation:

1. Gain and loss percentages are applied on different cost prices, not the same base.
2. The loss is calculated using the formula for overall percentage loss in such cases:

$$\text{Overall Loss Percentage} = \frac{\text{Common Gain or Loss Percentage}^2}{100} = \frac{10^2}{100} = 1\%.$$

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3. Hence, the shopkeeper incurs an **overall 1% loss**.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 317.

Question 78:

The ratio of ----- what is their LCM?

Correct Answer: (b) 144

Step-by-Step:

1. Let the numbers be $3x$ and $4x$, where $\text{HCF} = x$.
2. Given $\text{HCF} = 12$, $x = 12$.
3. The numbers are $3 \times 12 = 36$ and $4 \times 12 = 48$.
4. $\text{LCM} = \frac{\text{Product of numbers}}{\text{HCF}} = \frac{36 \times 48}{12} = 144$.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 298.

Question 79:

The difference ----- at 10% per annum is:

Correct Answer: (a) ₹50

Explanation:

1. Simple Interest (SI):

$$SI = \frac{P \times R \times T}{100} = \frac{5000 \times 10 \times 2}{100} = 1000.$$

2. Compound Interest (CI):

$$CI = P \left(1 + \frac{R}{100}\right)^T - P = 5000 \left(1 + \frac{10}{100}\right)^2 - 5000 = 1050.$$

3. Difference = $CI - SI = 1050 - 1000 = 50$.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 292.

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Question 80:

If the sides ----- its area?

Correct Answer: (a) 84 cm^2

Explanation (Using Heron's Formula):

1. Semi-perimeter $s = \frac{13+14+15}{2} = 21 \text{ cm}$.

2. Area = $\sqrt{s(s-a)(s-b)(s-c)} =$
 $\sqrt{21(21-13)(21-14)(21-15)} = \sqrt{21 \times 8 \times 7 \times 6} = 84 \text{ cm}^2$.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 330.

Question 81:

If 8 men can ----- same work?

Correct Answer: (a) 16 days

Step-by-Step:

1. Total work = Number of men \times Number of days = $8 \times 20 =$
160 man-days.

2. Work done by 10 men in 1 day = $\frac{160}{10} = 16$ days.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 478.

Question 82:

What is the ----- 6, 9, and 12?

Correct Answer: (b) 72

Explanation:

1. The smallest number divisible by all three is their **LCM**.
2. Prime factorization:

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○ $6 = 2 \times 3$, $9 = 3^2$, $12 = 2^2 \times 3$

3. $LCM = 2^2 \times 3^2 = 72$.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 299.

Question 83:

If the sum of ----- is the largest number?

Correct Answer: (c) 14

Step-by-Step:

1. Let the three consecutive even numbers be x , $x + 2$, $x + 4$
2. Sum = $x + (x + 2) + (x + 4) = 36$
3. Solve for x : $3x + 6 = 36 \Rightarrow x = 10$.
4. Largest number = $x + 4 = 14$.

Reference: "Quantitative Aptitude for Competitive Examinations" by R.S. Aggarwal, 20th Edition, Page 305.

Question 84:

Find the -----: 7, 26, 63, 124, ?

Correct Answer: (a) 215

Explanation:

1. The pattern is $n^3 - 1$, where n is a consecutive integer:
 - $2^3 - 1 = 7$, $3^3 - 1 = 26$, $4^3 - 1 = 63$, $5^3 - 1 = 124$, $6^3 - 1 = 215$.

Reference: "Advanced Mathematical Problems" by R.D. Sharma, 12th Edition, Page 112.

Question 85:

In a certain ----- be written?

Correct Answer: (a) ELPMIS

Explanation:

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1. The code reverses the letters in the word.
2. Reverse "SIMPLE" to get "ELPMIS."

Reference: "Verbal and Non-Verbal Reasoning" by R.S. Aggarwal, Page 168.

Question 86:

Which of the ----- is running?

Correct Answer: (b) RAM

Explanation:

1. **RAM (Random Access Memory)** temporarily stores data that the CPU needs while the system is running.
2. Unlike **ROM**, it is volatile and loses its contents when the computer shuts down.

Reference: "Computer Fundamentals" by P.K. Sinha, 6th Edition, Page 78.

Question 87:

Which file ----- files?

Correct Answer: (b) .zip

Explanation:

1. **.zip** is a file format used for compressing files to reduce their size for storage or transmission.
2. It allows bundling multiple files into a single compressed archive.

Reference: "Introduction to Computers" by Peter Norton, 7th Edition, Page 203.

Question 88:

In MS Excel, ----- a formula?

Correct Answer: (d) =

Explanation:

1. In **Microsoft Excel**, formulas always begin with the **equals sign (=)** to indicate a calculation.

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2. For example, =A1+B1=A1+B1=A1+B1 adds the values in cells A1 and B1.

Reference: "Microsoft Excel Step by Step" by Curtis Frye, 2019 Edition, Page 45.

Question 89:

A kilobyte ----- bytes.

Correct Answer: (b) 1024

Explanation:

1. A **kilobyte (KB)** is equal to **1024 bytes**, based on the binary system used in computing ($2^{10} = 1024$).

Reference: "Computer Organization and Design" by David A. Patterson, 5th Edition, Page 43.

Question 90:

Which key ----- in Windows?

Correct Answer: (a) F2

Explanation:

1. In **Windows**, pressing **F2** selects the file or folder name, allowing it to be renamed.
2. It is a keyboard shortcut for efficient file management.

Reference: "Windows 10 User Guide" by Richard Reed, 2nd Edition, Page 89.

Question 91:

Who was ----- Army (INA)?

Correct Answer: (c) Mohan Singh

Explanation:

1. **Mohan Singh**, an officer of the British Indian Army, established the **Indian National Army (INA)** in 1942 in Southeast Asia to fight for India's independence.
2. Later, **Subhas Chandra Bose** took command and restructured the INA to fight alongside Japanese forces during World War II.

Reference: "India's Struggle for Independence" by Bipan Chandra, Page 365.

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Question 92:

The ----- each location?

Correct Answer: (c) 12 years

Explanation:

1. **Kumbh Mela**, one of the largest religious gatherings in the world, is held at four locations in India—**Allahabad, Haridwar, Ujjain, and Nashik**—every **12 years**.
2. The cycle is based on planetary alignments, particularly **Jupiter's position** in relation to the zodiac.

Reference: "Cultural History of India" by A.L. Basham, Page 273.

Question 93:

The Battle of ----- in which year?

Correct Answer: (a) 1757

Explanation:

1. The **Battle of Plassey**, fought on **23 June 1757**, marked the beginning of British dominance in India.
2. It was a decisive victory for the **British East India Company** led by Robert Clive against **Siraj-ud-Daulah**, the Nawab of Bengal.

Reference: "A History of Modern India" by Ishita Banerjee-Dube, Page 78.

Question 94:

Which Indian ----- of sugarcane?

Correct Answer: (a) Uttar Pradesh

Explanation:

1. **Uttar Pradesh** is the leading sugarcane-producing state in India due to its favorable **climate and soil conditions**.
2. Major sugarcane-growing regions include **Meerut, Saharanpur, and Muzaffarnagar**.

Reference: "Indian Agriculture" by R.N. Sharma, Page 158.

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Question 95:

Who was the ----- the British Parliament?

Correct Answer: (a) Dadabhai Naoroji

Explanation:

1. **Dadabhai Naoroji**, also known as the "Grand Old Man of India," was elected to the **British Parliament** in **1892**.
2. He represented the **Liberal Party** and worked to highlight the economic exploitation of India by the British.

Reference: "Indian National Movement" by B.L. Grover, Page 265.

Question 96:

Which of the ----- of Peninsular India?

Correct Answer: (d) Narmada

Explanation:

1. The **Narmada River** is one of the few west-flowing rivers in India, originating from the **Amarkantak Plateau** in Madhya Pradesh.
2. It flows into the **Arabian Sea**, unlike most peninsular rivers which flow eastward.

Reference: "Geography of India" by Majid Husain, Page 183.

Question 97:

Who gave the ----- "I shall have it"?

Correct Answer: (a) Bal Gangadhar Tilak

Explanation:

1. **Bal Gangadhar Tilak**, a prominent leader of the Indian independence movement, coined this slogan.
2. It inspired many to join the freedom struggle during the early 20th century.

Reference: "Freedom Struggle" by Bipin Chandra, Page 117.

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Question 98:

What is ----- (CAG) of India?

Correct Answer: (b) 6 years or until the age of 65

Explanation:

1. The **CAG of India** serves a term of **6 years** or until reaching the age of **65**, whichever is earlier.
2. The CAG audits government accounts and ensures accountability in public finances.

Reference: "Indian Polity" by M. Laxmikanth, 7th Edition, Page 45.

Question 99:

The ----- which animal?

Correct Answer: (c) One-horned Rhinoceros

Explanation:

1. Located in **Assam, Kaziranga National Park** is a UNESCO World Heritage Site and home to the **greater one-horned rhinoceros**.
2. It is also a biodiversity hotspot, supporting numerous other species like tigers and elephants.

Reference: "Biodiversity in India" by R.C. Sharma, Page 208.

Question 100:

The Non----- in which year?

Correct Answer: (b) 1920

Explanation:

1. The **Non-Cooperation Movement** was launched by **Mahatma Gandhi** in 1920 to resist British rule through non-violent means.
2. It included boycotting British goods, institutions, and services.

Reference: "India's Struggle for Independence" by Bipan Chandra, Page 285.

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