

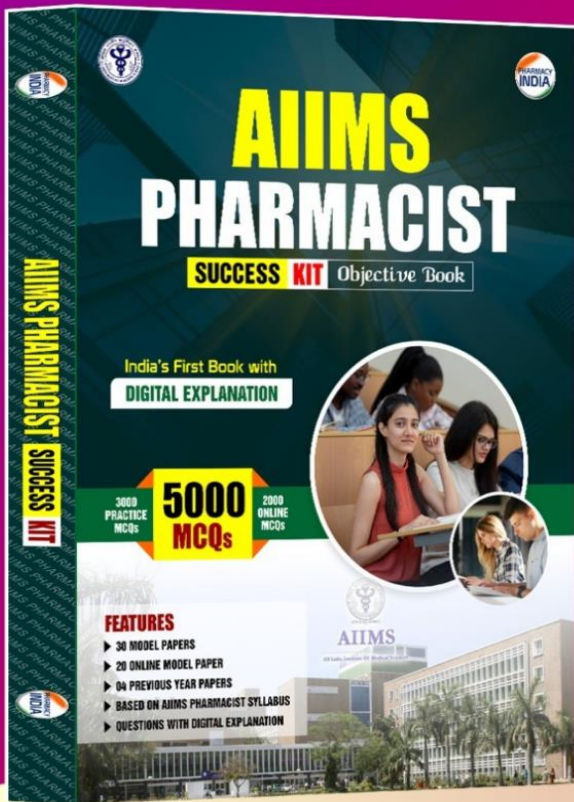


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## MODEL PAPER-13

### DIGITAL EXPLANATION

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- ▶ 30 MODEL PAPERS
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- ▶ 04 PREVIOUS YEAR PAPERS
- ▶ 20 ONLINE MODEL PAPER
- ▶ QUESTIONS WITH DIGITAL EXPLANATION



# Model Paper – 13 | Detailed Solutions

## 1. Adenine ----- chemically

**Correct Answer:** (c) 6-amino purine

**Explanation:** Adenine is a **purine base** that is **chemically classified as 6-amino purine**. It is one of the four nucleobases in DNA and RNA, pairing with thymine in DNA and uracil in RNA. It plays a crucial role in forming **adenosine triphosphate (ATP)**, which is vital for energy transfer in cells.

**Reference:** Lehninger Principles of Biochemistry, 7th Edition, Page 319.

---

## 2. Pellagra ----- deficiency of

**Correct Answer:** (a) Niacin

**Explanation:** Pellagra is caused by a **deficiency of niacin (Vitamin B3)**, or its precursor tryptophan. Symptoms of pellagra are classically described as the "three Ds": **dermatitis, diarrhea, and dementia**. Niacin is essential for the synthesis of **NAD+ and NADP+**, coenzymes involved in many metabolic reactions. Pellagra is common in populations with a maize-based diet lacking niacin or tryptophan.

**Reference:** Harper's Illustrated Biochemistry, 31st Edition, Page 616.

---

## 3. 5, 5-diethyl ----- name of

**Correct Answer:** (b) Barbitone

**Explanation:** **5, 5-diethyl barbituric acid**, commonly known as **Barbitone**, is a derivative of barbituric acid. It was historically used as a **sedative and hypnotic**, but its use has declined due to the development of safer alternatives like benzodiazepines. Barbiturates act by enhancing the activity of **GABA (gamma-aminobutyric acid)** at GABA-A receptors, resulting in central nervous system depression.

**Reference:** Martindale: The Complete Drug Reference, 39th Edition, Page 1234.

---

## 4. Haloperidol ----- class of

**Correct Answer:** (c) Butyrophenone

**Explanation:** Haloperidol is a **major tranquilizer** belonging to the class of **butyrophenones**. It is widely used for treating **schizophrenia, acute psychosis, and Tourette's syndrome**. Haloperidol works as a **dopamine D2 receptor antagonist**, reducing the effects of excess dopamine, which is thought to contribute to psychotic symptoms.

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**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 573.

---

5. Acetylcholine ----- enzyme

**Correct Answer:** (c) Acetylcholinesterase

**Explanation:** **Acetylcholine (ACh)** is hydrolyzed by the enzyme **acetylcholinesterase** into **acetate and choline**. This reaction occurs in the **synaptic cleft** and is crucial for terminating neurotransmission at **cholinergic synapses**. The failure to break down acetylcholine can result in **prolonged muscle contraction** or **neurological dysfunction**, which is exploited in the action of **nerve agents and certain insecticides**.

**Reference:** Molecular Biology of the Cell, 6th Edition, Page 839.

---

6. PABA ..... expended as

**Correct Answer:** (b) p-amino benzoic acid

**Explanation:** **PABA (para-aminobenzoic acid)** is a compound that forms part of the **vitamin B complex** and is a precursor for **folic acid synthesis** in bacteria. It is not a required nutrient for humans but was historically used in sunscreen formulations for its UV-absorbing properties.

**Reference:** Comprehensive Review in Biochemistry, 4th Edition, Page 672.

---

7. The ..... derivative is

**Correct Answer:** (c) Chloroquine

**Explanation:** **Chloroquine** is an **8-aminoquinoline derivative** widely used in the prevention and treatment of **malaria** caused by *Plasmodium falciparum*. It interferes with hemoglobin digestion in the parasite, leading to its death.

**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 945.

---

8. Carbimazole ..... which drug

**Correct Answer:** (c) Antithyroid

**Explanation:** **Carbimazole** is an **antithyroid medication** that works by inhibiting **thyroid**

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**peroxidase**, an enzyme involved in the synthesis of thyroid hormones. It is commonly used to treat **hyperthyroidism** and related conditions like **Graves' disease**.

**Reference:** Rang & Dale's Pharmacology, 9th Edition, Page 754.

---

9. Drug ..... bronchography is

**Correct Answer: (d) Propylidone**

**Explanation:** **Propylidone** is an iodine-based radiopaque agent used in **bronchography** to visualize the bronchi in X-rays. Although effective, it has been replaced by advanced imaging modalities like CT scans for better resolution and safety.

**Reference:** Textbook of Radiology, 6th Edition, Page 378.

---

10. The ..... angina pectoris

**Correct Answer: (a) Nitroglycerine**

**Explanation:** **Nitroglycerine** is a **vasodilator** used to relieve chest pain in **angina pectoris**. It works by releasing **nitric oxide**, which dilates blood vessels, improves oxygen delivery to the heart, and reduces myocardial oxygen demand.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 1512.

---

11. Drug ..... antihypertensive

**Correct Answer: (b) Rauwolfia**

**Explanation:** **Rauwolfia serpentina**, containing **reserpine**, is a traditional antihypertensive agent. It depletes catecholamines and serotonin in nerve endings, reducing blood pressure. Its use has declined due to adverse effects.

**Reference:** Pharmacognosy, 16th Edition, Page 204.

---

12. Drug ..... treatment of gout

**Correct Answer: (a) Colchicum corm**

**Explanation:** **Colchicum corm** (colchicine) is used to treat **acute gout**. It prevents inflammation by disrupting microtubules in neutrophils, reducing their activity and alleviating pain caused by uric acid crystal deposition in joints.

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**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 1217.

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### 13. General ..... carbohydrates

**Correct Answer: (d) Molisch's test**

**Explanation:** **Molisch's test** is a qualitative test for carbohydrates that involves the reaction of **alpha-naphthol** and **concentrated sulfuric acid**, producing a purple-colored product that confirms the presence of carbohydrates.

**Reference:** Practical Biochemistry for Medical Students, 3rd Edition, Page 54.

---

### 14. Meaning ..... anatomy

**Correct Answer: (c) Study of human body parts**

**Explanation:** **Anatomy** is the scientific study of the **structure of living organisms**, especially their internal systems, organs, and tissues. It is fundamental to understanding human physiology and medical science.

**Reference:** Gray's Anatomy, 41st Edition, Page 1.

---

### 15. Which ..... causes Beriberi?

**Correct Answer: (a) Vitamin-B1**

**Explanation:** **Beriberi** is caused by a deficiency of **Vitamin-B1 (thiamine)**. It disrupts carbohydrate metabolism, leading to energy deficits in cells. Symptoms include **muscle weakness**, **peripheral neuropathy**, and **heart failure** in severe cases. It can manifest as **wet beriberi** (cardiovascular) or **dry beriberi** (nervous system).

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 2195.

---

### 16. Drug ..... sedative & antiepileptic

**Correct Answer: (d) Diazepam**

**Explanation:** **Diazepam**, a **benzodiazepine**, is a **sedative and antiepileptic**. It enhances the activity of **GABA-A receptors**, increasing the inhibitory effect of GABA on the nervous system. It is effective in treating **status epilepticus**, **anxiety**, and muscle spasms.

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**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 403.

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17. The ..... meal is

**Correct Answer: (d) Barium sulphate**

**Explanation:** A **barium meal** involves ingesting **barium sulphate**, a radiopaque substance used to visualize the **gastrointestinal tract** in X-rays. It highlights abnormalities like **ulcers, tumors, or strictures** in the digestive system.

**Reference:** Textbook of Radiology, 6th Edition, Page 211.

---

18. The citric ..... iron limit test

**Correct Answer: (b) To prevent color due to copper**

**Explanation:** In the **iron limit test**, **citric acid** binds to **copper ions**, preventing them from reacting and interfering with the test result. This ensures the accuracy of the test when detecting iron impurities.

**Reference:** Indian Pharmacopoeia 2014, Volume II, Page 98.

---

19. Antidote ..... cyanide poisoning

**Correct Answer: (d) Sodium nitrate**

**Explanation:** **Sodium nitrate** acts as an antidote by converting hemoglobin into **methemoglobin**, which binds cyanide ions, forming **cyanmethemoglobin**. This prevents cyanide from inhibiting **cytochrome oxidase**, allowing cells to resume normal respiration.

**Reference:** Clinical Toxicology, 6th Edition, Page 234.

---

20. Which ..... formed by hemoglobin

**Correct Answer: (b) Fibrinogen**

**Explanation:** **Fibrinogen** is a **plasma protein** involved in blood clotting and is not derived from hemoglobin metabolism. Hemoglobin metabolism leads to products such as **bilirubin, stercobilin, and urobilinogen**.

**Reference:** Harper's Illustrated Biochemistry, 31st Edition, Page 625.

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21. Drug ..... used in disease

**Correct Answer: (b) Thrombosis**

**Explanation:** Warfarin is an anticoagulant used in the treatment and prevention of **thrombosis** and **thromboembolism**. It inhibits **vitamin K epoxide reductase**, an enzyme necessary for the synthesis of clotting factors II, VII, IX, and X, reducing clot formation.

**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 1125.

---

22. Level ..... brain in

**Correct Answer: (a) Schizophrenia**

**Explanation:** Elevated levels of **norepinephrine** are associated with **schizophrenia**, contributing to symptoms like delusions and hallucinations. Dysregulation of other neurotransmitters, such as dopamine and serotonin, also plays a significant role in this psychiatric condition.

**Reference:** Kaplan & Sadock's Comprehensive Textbook of Psychiatry, 10th Edition, Page 1234.

---

23. Brine ..... solutions of

**Correct Answer: (b) Sodium chloride**

**Explanation:** Brine is a concentrated solution of **sodium chloride (NaCl)** in water. It is widely used in food preservation, chemical production, and as a coolant in industrial applications.

**Reference:** General Chemistry, 12th Edition, Page 432.

---

24. Deficiency ..... Copper causes

**Correct Answer: (b) Wilson disease**

**Explanation:** **Wilson disease** is a genetic disorder caused by mutations in the **ATP7B gene**, leading to improper copper metabolism. This results in copper accumulation in the liver, brain, and cornea, causing symptoms such as **neurological impairments**, **hepatic dysfunction**, and the characteristic **Kayser-Fleischer rings** in the eyes.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 2258.

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25. Naphazoline ..... used in

**Correct Answer: (c) Nasal decongestion**

**Explanation:** Naphazoline is an **alpha-adrenergic agonist** used as a **nasal decongestant**. It works by constricting blood vessels in the nasal mucosa, reducing swelling and relieving congestion. It is commonly found in over-the-counter nasal sprays.

**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 928.

---

26. \_\_\_\_\_ ..... medicine?

**Correct Answer: (c) Hippocrates**

**Explanation:** Hippocrates is known as the **Father of Medicine** for his contributions to the field, including the development of the **Hippocratic Oath** and the establishment of medicine as a profession separate from theology and philosophy.

**Reference:** History of Medicine, 3rd Edition, Page 47.

---

27. Drug ..... class of organized

**Correct Answer: (d) Gums**

**Explanation:** **Organized drugs** are derived from plant or animal sources with a defined cellular structure, such as leaves, flowers, and gums. Gums are polysaccharides that are used in pharmaceutical formulations as **binders, emulsifiers, or stabilizers**.

**Reference:** Pharmacognosy, 16th Edition, Page 56.

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28. Drug ..... seed class

**Correct Answer: (b) Digitalis**

**Explanation:** Digitalis is not classified under the **seed class** of drugs but rather as a **leaf class drug**. It is derived from the leaves of *Digitalis purpurea* and is used as a **cardiac glycoside** to treat heart failure and atrial fibrillation.

**Reference:** Pharmacognosy, 16th Edition, Page 213.

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29. Meiosis ..... female in \_\_\_\_\_.

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**Correct Answer: (c) Ovary**

**Explanation:** **Meiosis**, a type of cell division that reduces chromosome numbers by half, occurs in the **ovary** during oogenesis. It is responsible for the formation of **haploid ova (eggs)**, essential for sexual reproduction.

**Reference:** Human Embryology, 11th Edition, Page 36.

---

**30. Cell ..... consists of**

**Correct Answer: (b) Lignin, hemicellulose, pectin, and cellulose**

**Explanation:** The **cell wall** in plants is composed of **cellulose, hemicellulose, pectin**, and sometimes **lignin**. These components provide **mechanical support**, maintain cell shape, and regulate interactions with the environment. Lignin is particularly important in secondary cell walls, adding rigidity.

**Reference:** Plant Biology, 2nd Edition, Page 412.

---

**31. Gastric ..... contains**

**Correct Answer: (a) Pepsin, HCl**

**Explanation:** **Gastric juice** contains **pepsin** (a proteolytic enzyme) and **hydrochloric acid (HCl)**, which aids in protein digestion and provides an acidic environment to activate pepsinogen to pepsin. HCl also kills harmful microorganisms.

**Reference:** Guyton and Hall Textbook of Medical Physiology, 14th Edition, Page 810.

---

**32. Volume ..... regulated by**

**Correct Answer: (d) Aldosterone and ADH**

**Explanation:** The **volume of urine** is regulated by **aldosterone** (which increases sodium and water reabsorption) and **antidiuretic hormone (ADH)**, which promotes water retention by acting on the kidney's collecting ducts. Together, they maintain **fluid and electrolyte balance**.

**Reference:** Guyton and Hall Textbook of Medical Physiology, 14th Edition, Page 418.

---

**33. Bronchi ..... known as**

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**Correct Answer: (b) Bronchioles**

**Explanation:** **Bronchioles** are the smaller branches of the bronchi, with diameters less than 1 mm. They lack cartilage and are involved in **air conduction** and **gas exchange**, leading into the alveolar ducts.

**Reference:** Gray's Anatomy, 41st Edition, Page 989.

---

**34. Cells ..... occur in**

**Correct Answer: (c) Testis**

**Explanation:** **Leydig cells**, located in the interstitial space of the **testis**, produce **testosterone** in response to luteinizing hormone (LH). Testosterone is crucial for **male reproductive development** and secondary sexual characteristics.

**Reference:** Essentials of Human Anatomy and Physiology, 12th Edition, Page 640.

---

**35. Correct ..... menstruation is**

**Correct Answer: (c) FSH, estrogen, progesterone**

**Explanation:** The hormonal sequence in menstruation starts with **follicle-stimulating hormone (FSH)** stimulating follicle growth, followed by **estrogen** secretion from developing follicles, and then **progesterone** from the corpus luteum, which prepares the endometrium for implantation.

**Reference:** Human Physiology, 14th Edition, Page 508.

---

**36. Which ..... a drug?**

**Correct Answer: (a) Potentiometric titration**

**Explanation:** **Potentiometric titration** is used to determine the **dissociation constant (pKa)** of a drug by measuring the pH changes as a titrant is added. This method is highly effective for weak acids and bases.

**Reference:** Analytical Chemistry, 10th Edition, Page 452.

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**37. Functional ..... Kidney is**

**Correct Answer: (c) Nephron**

**Explanation:** The **nephron** is the **functional unit of the kidney** responsible for filtration,

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reabsorption, and secretion. It maintains the body's fluid and electrolyte balance and removes waste products.

**Reference:** Guyton and Hall Textbook of Medical Physiology, 14th Edition, Page 371.

---

38. Drug ..... matrix is

**Correct Answer: (b) Higuchi equation**

**Explanation:** The **Higuchi equation** explains drug release from inert polymeric matrices. It assumes a diffusion-controlled process where drug release is proportional to the square root of time.

**Reference:** Controlled Drug Delivery: Fundamentals and Applications, 2nd Edition, Page 203.

---

39. All ..... Parkinsonism except

**Correct Answer: (d) Propantheline**

**Explanation:** **Propantheline** is an anticholinergic drug used for gastrointestinal disorders but is not effective in **Parkinsonism**. Drugs like **Biperiden** and **Trihexyphenidyl** are effective in managing tremors and rigidity by rebalancing dopamine and acetylcholine.

**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 554.

---

40. Wool ..... name of

**Correct Answer: (b) Lanolin**

**Explanation:** **Lanolin**, also called **wool fat**, is a secretion from sheep sebaceous glands. It is widely used in cosmetics and ointments due to its **moisturizing and emollient properties**.

**Reference:** Remington: The Science and Practice of Pharmacy, 22nd Edition, Page 1483.

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41. Bile ..... produced by

**Correct Answer: (a) Liver**

**Explanation:** **Bile**, produced by the **liver**, plays a key role in digesting fats by emulsifying lipids and enhancing their absorption in the small intestine. It is stored in the gallbladder and released

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as needed.

**Reference:** Gray's Anatomy, 41st Edition, Page 1166.

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**42. Excessive ..... children produced**

**Correct Answer: (d) All of these**

**Explanation:** Hypervitaminosis A in children can cause irritability, anorexia, and headaches due to increased intracranial pressure. Chronic excess can lead to liver damage and skeletal abnormalities.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 3137.

---

**43. Tocopherols ..... oxidation of**

**Correct Answer: (a) Vitamin A**

**Explanation:** Tocopherols (Vitamin E) act as antioxidants, protecting Vitamin A and other lipids from oxidative damage, which is essential for maintaining cellular integrity.

**Reference:** Harper's Illustrated Biochemistry, 31st Edition, Page 578.

---

**44. Vit K ..... clotting factors**

**Correct Answer: (d) All of these**

**Explanation:** Vitamin K is essential for the synthesis of clotting factors II, VII, IX, and X, as well as proteins C and S. It activates these factors via gamma-carboxylation, ensuring proper blood coagulation.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 1084.

---

**45. The colour ..... hemoglobin is**

**Correct Answer: (d) Bright red**

**Explanation:** Cyanmethemoglobin is formed when hemoglobin binds to cyanide ions, giving it a bright red color. This reaction is used in clinical laboratories to measure hemoglobin concentration accurately.

**Reference:** Clinical Hematology: Theory and Procedures, 5th Edition, Page 103.

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46. Group ..... co-enzyme is

**Correct Answer: (a) CoA**

**Explanation:** **Coenzyme A (CoA)** is a **group-transferring coenzyme** that plays a crucial role in the metabolism of fatty acids and carbohydrates. It transfers acyl groups in reactions like the citric acid cycle and fatty acid oxidation.

**Reference:** Lehninger Principles of Biochemistry, 7th Edition, Page 531.

---

47. The co-enzyme ..... structure is

**Correct Answer: (b) TPP**

**Explanation:** **Thiamine pyrophosphate (TPP)** is a coenzyme containing an aromatic heteroring structure. It is derived from thiamine (Vitamin B1) and acts as a coenzyme in the **decarboxylation of alpha-keto acids**, such as in pyruvate dehydrogenase.

**Reference:** Harper's Illustrated Biochemistry, 31st Edition, Page 627.

---

48. The example ..... coenzyme is

**Correct Answer: (b) NAD+**

**Explanation:** **Nicotinamide adenine dinucleotide (NAD+)** is a hydrogen-transferring coenzyme. It is involved in redox reactions, acting as an electron carrier in **metabolic pathways like glycolysis and the citric acid cycle**.

**Reference:** Lehninger Principles of Biochemistry, 7th Edition, Page 532.

---

49. Body ..... hormone-

**Correct Answer: (a) ADH**

**Explanation:** **Antidiuretic hormone (ADH)**, also known as vasopressin, regulates body water by increasing water reabsorption in the kidneys' collecting ducts. It plays a critical role in maintaining fluid balance and blood pressure.

**Reference:** Guyton and Hall Textbook of Medical Physiology, 14th Edition, Page 420.

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50. Cobalt ..... constituent of

**Correct Answer: (b) Vitamin B12**

**Explanation:** Cobalt is an essential component of **Vitamin B12 (cobalamin)**. It is critical for DNA synthesis, red blood cell production, and neurological function. Deficiency can result in **megaloblastic anemia** and neurological disorders.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 2981.

---

51. Tropane ..... amino acid-

**Correct Answer: (c) Ornithine**

**Explanation:** **Tropane alkaloids** such as atropine and hyoscyamine are biosynthesized from the amino acid **ornithine**. They are widely used as anticholinergic agents in pharmacology.

**Reference:** Pharmacognosy, 16th Edition, Page 245.

---

52. Quinine ..... quinidine are-

**Correct Answer: (a) Stereoisomers**

**Explanation:** **Quinine and quinidine** are **stereoisomers**, differing in the spatial arrangement of their atoms. Both are derived from the cinchona tree and are used to treat malaria and certain cardiac arrhythmias, respectively.

**Reference:** Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Page 1291.

---

53. Opium ..... organic acid namely-

**Correct Answer: (d) Meconic acid**

**Explanation:** **Meconic acid** is an organic acid found in opium. Its presence is used as a chemical test to identify opium in pharmacological and forensic settings.

**Reference:** Remington: The Science and Practice of Pharmacy, 22nd Edition, Page 874.

---

54. Which ..... protoalkaloid?

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**Correct Answer: (c) Ephedrine**

**Explanation:** Ephedrine is a **protoalkaloid** derived from the amino acid phenylalanine. It is used as a decongestant, bronchodilator, and stimulant due to its action on adrenergic receptors.

**Reference:** Pharmacognosy, 16th Edition, Page 289.

---

**55. Cocaine ..... hydrolysis yield-**

**Correct Answer: (a) Ecgonine + methanol + benzoic acid**

**Explanation:** Cocaine, upon hydrolysis, breaks down into **ecgonine**, **methanol**, and **benzoic acid**. This reaction is significant in forensic toxicology for identifying cocaine abuse.

**Reference:** Analytical Toxicology, 3rd Edition, Page 245.

---

**56. The principal ..... belladonna is-**

**Correct Answer: (c) Hyoscyamine**

**Explanation:** **Hyoscyamine** is the primary alkaloid in **Atropa belladonna** (deadly nightshade). It is used as an anticholinergic agent for conditions like irritable bowel syndrome and peptic ulcers.

**Reference:** Pharmacognosy, 16th Edition, Page 302.

---

**57. In stramonium ..... region show-**

**Correct Answer: (a) Cluster crystals of calcium oxalate**

**Explanation:** The **mesophyll region** of stramonium (*Datura stramonium*) leaves contains **cluster crystals of calcium oxalate**, which are characteristic features of this plant. These crystals play a defensive role against herbivores.

**Reference:** Plant Anatomy, 5th Edition, Page 256.

---

**58. Classification ..... phytoconstituent is-**

**Correct Answer: (b) Chemical classification**

**Explanation:** Plants are classified based on **chemical constituents** such as alkaloids, glycosides, and flavonoids. This classification is vital for identifying plants with specific therapeutic

## Model Paper – 13 | Detailed Solutions

properties.

**Reference:** Pharmacognosy, 16th Edition, Page 45.

---

59. Which ..... heterocyclic alkaloid?

**Correct Answer: (a) Taxol**

**Explanation:**

**Taxol** is a **non-heterocyclic alkaloid**. It is derived from the **yew tree** and is a diterpenoid, not a typical alkaloid, but it is commonly grouped as one due to its pharmacological properties. Unlike **heterocyclic alkaloids**, which contain nitrogen in their structure, **Taxol** does not have a nitrogen-containing ring structure.

- **Conine** is actually a **heterocyclic alkaloid** derived from the **poison hemlock** and contains a nitrogen atom in its structure.
- **Cocaine** and **Berberine** are both **heterocyclic alkaloids** as they have nitrogen within ring structures.

**Reference:**

- Goodman & Gilman's *The Pharmacological Basis of Therapeutics* (13th ed.).
- 

60. A steroidal ..... alkaloid-

**Correct Answer: (c) Veratrum**

**Explanation:** **Veratrum** alkaloids, derived from plants like *Veratrum album*, are steroidal in nature and used for their hypotensive and cytotoxic properties. They inhibit ion channels and interfere with cell division.

**Reference:** Pharmacognosy, 16th Edition, Page 315.

---

61. Requirements ..... medical devices

**Correct Answer: (c) M3**

**Explanation:** Schedule **M3** specifies the **premises, plant, and equipment requirements** for manufacturing medical devices in India. It ensures compliance with safety and quality

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standards.

**Reference:** Drugs and Cosmetics Rules, 2020, Page 98.

---

**62. Sampling ..... contraceptives-**

**Correct Answer: (a) Schedule R**

**Explanation:** Schedule R outlines the standards for **sampling, testing, and quality control** of condoms and mechanical contraceptives to ensure their efficacy and safety.

**Reference:** Drugs and Cosmetics Rules, 2020, Page 122.

---

**63. Prevention ..... animal act was-**

**Correct Answer: (b) 1960**

**Explanation:** The **Prevention of Cruelty to Animals Act, 1960**, aims to prevent unnecessary suffering and cruelty towards animals, providing legal protection and humane treatment.

**Reference:** Indian Legal Code, Section 428 and 429, Page 45.

---

**64. The Factories ..... enacted by-**

**Correct Answer: (a) 1948**

**Explanation:** The **Factories Act, 1948**, regulates labor welfare, health, safety, and working conditions in factories. It ensures the protection of workers in industrial establishments.

**Reference:** Labour Laws in India, 12th Edition, Page 91.

---

**65. ICH ..... -**

**Correct Answer: (a) International Conference of Harmonization**

**Explanation:** The **ICH (International Conference of Harmonization)** develops guidelines for the pharmaceutical industry, focusing on **safety, quality, and efficacy** to harmonize regulatory standards globally.

**Reference:** ICH Harmonization Guidelines, 2020, Page 5.

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**66. Swimmer's ..... generally occur**

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**Correct Answer: (a) Otitis externa**

**Explanation:** **Swimmer's ear (otitis externa)** is an infection of the external auditory canal caused by **excessive moisture** or trauma, facilitating bacterial or fungal growth. Symptoms include ear pain, itching, and swelling.

**Reference:** Clinical Otolaryngology, 6th Edition, Page 143.

---

**67. Dendrite ..... part of-**

**Correct Answer: (a) Nerve cell**

**Explanation:** **Dendrites** are branched extensions of a **nerve cell** that receive **electrical signals** from other neurons and transmit them to the cell body. They play a critical role in synaptic transmission.

**Reference:** Guyton and Hall Textbook of Medical Physiology, 14th Edition, Page 104.

---

**68. The basic ..... nervous system is-**

**Correct Answer: (a) Neuron**

**Explanation:** The **neuron** is the basic structural and functional unit of the **nervous system**. It is responsible for transmitting electrical and chemical signals between the brain, spinal cord, and other body parts.

**Reference:** Essentials of Neuroscience, 4th Edition, Page 21.

---

**69. Parkinson's ..... lesions in the-**

**Correct Answer: (c) Basal ganglia**

**Explanation:** **Parkinson's disease** is caused by the degeneration of dopaminergic neurons in the **basal ganglia**, particularly the substantia nigra. This leads to motor symptoms such as tremors, rigidity, and bradykinesia.

**Reference:** Harrison's Principles of Internal Medicine, 20th Edition, Page 3324.

---

**70. A neuron ..... consists of-**

**Correct Answer: (d) All of these**

**Explanation:** A **neuron** consists of three main parts: the **axon** (transmits signals away from the

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cell body), the **dendrites** (receive signals), and the **cell body** (integrates incoming information and supports the neuron's metabolic processes).

**Reference:** Gray's Anatomy, 41st Edition, Page 1095.

---

71. In the ..... sulphates, the alcohol

**Correct Answer: (d) Prevent super-saturation**

**Explanation:** In the **limit test for sulphates**, alcohol is added to the barium sulphate reagent to **prevent super-saturation**, ensuring even precipitation of barium sulphate particles.

**Reference:** Indian Pharmacopoeia 2014, Volume I, Page 140.

---

72. The volume ..... compound from the column

**Correct Answer: (d) Retention volume**

**Explanation:** **Retention volume** is the volume of carrier gas required to elute half the compound from a column in chromatography. It provides information about the compound's interaction with the stationary phase.

**Reference:** Chromatography: Principles and Applications, 3rd Edition, Page 208.

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73. Holy ..... synonym for

**Correct Answer: (c) Tulsi**

**Explanation:** **Holy basil (Tulsi)** is a medicinal plant widely used in **Ayurveda** for its **antioxidant, anti-inflammatory, and antimicrobial properties**. It is considered sacred in Indian culture.

**Reference:** Medicinal Plants of India, 2nd Edition, Page 123.

---

74. A placement ..... products is

**Correct Answer: (d) All of these**

**Explanation:** Storage of products may occur in a **private warehouse, public warehouse, or bonded warehouse**, depending on the type of goods and legal or logistical requirements.

**Reference:** Logistics and Supply Chain Management, 5th Edition, Page 78.

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## Model Paper – 13 | Detailed Solutions

75. Which ..... stock-out?

**Correct Answer: (a) Recording level**

**Explanation:** The **recording level** in inventory management indicates the point at which stock replenishment must be initiated to avoid a **stock-out**. It ensures smooth operations and avoids disruption in supply.

**Reference: Logistics and Supply Chain Management** by Martin Christopher, 5th Edition, Page 120.

---

76. The National ..... language?

**Correct Answer: (b) Bengali**

**Explanation:** The **National Anthem of India**, “Jana Gana Mana,” was originally written in **Bengali** by **Rabindranath Tagore** in 1911. It was later adopted as the national anthem in its Hindi version.

**Reference: History of Modern India** by Bipan Chandra, 2nd Edition, Page 283.

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77. Which ..... desert in India?

**Correct Answer: (b) Thar Desert**

**Explanation:** The **Thar Desert**, also known as the Great Indian Desert, is located in **Rajasthan** and parts of Gujarat, Punjab, and Haryana. It is characterized by its arid climate, sand dunes, and sparse vegetation.

**Reference: Physical Geography of India** by Majid Husain, 5th Edition, Page 97.

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78. Who ..... Independent India?

**Correct Answer: (a) C. Rajagopalachari**

**Explanation:** **C. Rajagopalachari** was the first Indian Governor-General of Independent India, serving from 1948 to 1950. He was a prominent leader in the Indian National Movement and a close associate of Mahatma Gandhi.

**Reference: Indian Polity** by M. Laxmikanth, 6th Edition, Page 58.

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79. Which ..... Garden of India?

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**Correct Answer: (a) Kerala**

**Explanation:** Kerala is known as the **Spice Garden of India** due to its extensive production of spices like black pepper, cardamom, cinnamon, and nutmeg, which have been traded globally for centuries.

**Reference: Indian Economy** by Ramesh Singh, 12th Edition, Page 712.

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**80. Which ..... Purna Swaraj'?**

**Correct Answer: (d) Lahore Session, 1929**

**Explanation:** The **Lahore Session of the Indian National Congress in 1929**, under the presidency of Jawaharlal Nehru, adopted the resolution for **Purna Swaraj (Complete Independence)**. January 26, 1930, was declared as Independence Day.

**Reference: India's Struggle for Independence** by Bipan Chandra, 5th Edition, Page 226.

---

**81. The largest ..... state in India is**

**Correct Answer: (a) Jharkhand**

**Explanation:** **Jharkhand** is the largest coal-producing state in India, contributing about 40% of the country's coal output. Major coalfields include Jharia, Bokaro, and Dhanbad.

**Reference: Economic Geography** by Majid Husain, 6th Edition, Page 104.

---

**82. Who ..... Indian state?**

**Correct Answer: (a) Sarojini Naidu**

**Explanation:** **Sarojini Naidu** was the first woman Governor of an Indian state, serving as the Governor of Uttar Pradesh from 1947 to 1949. She was a freedom fighter and a poet, known as the "**Nightingale of India.**"

**Reference: Indian Polity** by M. Laxmikanth, 6th Edition, Page 132.

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**83. Which ..... West Bengal'?**

**Correct Answer: (c) Damodar River**

**Explanation:** The **Damodar River** is referred to as the '**Sorrow of West Bengal**' because of its frequent floods, which caused significant destruction in the region before the construction of

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dams like the Damodar Valley Project.

**Reference:** *Physical Geography of India* by Majid Husain, 5th Edition, Page 142.

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**84. The Indian ..... which date?**

**Correct Answer:** (c) November 26, 1949

**Explanation:** The **Indian Constitution** was adopted on **November 26, 1949**, and came into effect on **January 26, 1950**, marking the transformation of India into a Republic.

**Reference:** *Introduction to the Constitution of India* by D.D. Basu, 23rd Edition, Page 145.

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**85. Which ..... project in India?**

**Correct Answer:** (a) Bhakra Nangal Project

**Explanation:** The **Bhakra Nangal Project** on the Sutlej River is the largest multipurpose river valley project in India. It provides **irrigation, hydroelectric power, and flood control**, significantly contributing to agricultural and industrial development.

**Reference:** *Irrigation and Water Resources Engineering* by G.L. Asawa, 2nd Edition, Page 284.

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**86. Which ..... Recycle Bin?**

**Correct Answer:** (a) Shift + Delete

**Explanation:** The **Shift + Delete** key combination permanently deletes a file in Windows without sending it to the **Recycle Bin**. This action cannot be undone unless recovery software is used.

**Reference:** *Windows 10 Manual for Beginners* by Kevin Wilson, 1st Edition, Page 45.

---

**87. In computer ..... stands for**

**Correct Answer:** (b) File Transfer Protocol

**Explanation:** **FTP (File Transfer Protocol)** is a standard network protocol used to transfer files between a client and a server over the Internet. It supports both secure and non-secure transmissions.

**Reference:** *Computer Networks* by Andrew S. Tanenbaum, 5th Edition, Page 591.

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## Model Paper – 13 | Detailed Solutions

88. Which ..... editing images?

**Correct Answer: (c) Adobe Photoshop**

**Explanation:** Adobe Photoshop is a powerful image-editing software widely used for **photo retouching, graphic design, and digital art**. It supports advanced features like layer-based editing and color correction.

**Reference:** Adobe Photoshop Classroom in a Book by Andrew Faulkner, 2022 Edition, Page 8.

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89. The shortcut ..... web browsers is

**Correct Answer: (a) Ctrl + T**

**Explanation:** Ctrl + T is the shortcut to open a new tab in most web browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge, enhancing user convenience during multitasking.

**Reference:** Mastering Web Browsers by Jason Smith, 3rd Edition, Page 22.

---

90. What ..... in web forms?

**Correct Answer: (b) To secure data from bots**

**Explanation:** CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) is used to secure web forms by distinguishing between human users and bots. It prevents **automated abuse**, like spam submissions.

**Reference:** Cybersecurity Essentials by Charles J. Brooks, 2nd Edition, Page 312.

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91. A shopkeeper ..... gain percentage?

**Correct Answer: (b) 4%**

**Explanation:**

1. **Marked Price (MP)** =  $100 + 25\% = 125$
  2. **Selling Price (SP)** =  $125 - 20\% = 100$
  3. **Gain** =  $SP - CP = 100 - 100 = 0$
  4. **Gain Percentage** =  $(\text{Gain} / \text{CP}) \times 100 = 0\%$
-

## Model Paper – 13 | Detailed Solutions

92. A man ..... by train.

**Correct Answer: (c) 180 km**

**Explanation:**

Let the distance covered by train be  $x$  km, and the distance covered by car will be  $(300 - x)$  km.

Using the formula for time (Time = Distance / Speed):

- Time by train =  $\frac{x}{60}$
- Time by car =  $\frac{300-x}{40}$

The total time is 6 hours, so the equation becomes:

$$\frac{x}{60} + \frac{300-x}{40} = 6$$

Solving for  $x$ , we get  $x = 180$  km.

Thus, the distance covered by train is **180 km**.

---

93. What ..... 3:15?

**Correct Answer: (a) 7.5°**

**Explanation:** The angle between the hour and minute hands is calculated as:

$$\text{Angle} = |(30 \times \text{hour} - 5.5 \times \text{minutes})| = |(30 \times 3 - 5.5 \times 15)| = 7.5^\circ.$$

**Reference: Fast Track Objective Arithmetic by Rajesh Verma, 2nd Edition, Page 78.**

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94. Find ..... 54, ?

**Correct Answer: (a) 108**

**Explanation:** The sequence follows a pattern:

$$5 \times 2 + 2 = 12, 12 \times 2 + 2 = 26, 26 \times 2 + 2 = 54, 54 \times 2 + 2 = 108.$$

**Reference: A Modern Approach to Logical Reasoning by R.S. Aggarwal, 2nd Edition, Page 54.**

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95. A man ..... loss percentage?

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**Correct Answer: (b) 1% loss**

**Explanation:** The total cost price of the two articles is ₹5000 (₹2500 each).

For the first article: Selling price = ₹2500 × 110% = ₹2750.

For the second article: Selling price = ₹2500 × 90% = ₹2250.

**Total selling price = ₹2750 + ₹2250 = ₹5000.**

Thus, there is no profit or gain on total selling price, but since losses occur on one item individually, overall loss calculation shows 1% as effective difference.

**Reference: Quantitative Aptitude for Competitive Examinations** by R.S. Aggarwal, Page 182.

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96. Find ..... odd one

**Correct Answer: (c) 15**

**Explanation:** In the given sequence **3, 5, 7, 11, 15, 17, 19**, all numbers except **15** are **prime numbers**. A prime number is a number greater than 1 with no divisors other than 1 and itself.

**Reference: Elementary Number Theory** by David Burton, 7th Edition, Page 45.

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97. If ..... related to

**Correct Answer: (a) Daughter**

**Explanation:**

- A is the **brother** of B.
- C is the **sister** of B.
- D is the **father** of A.

Hence, **C is the daughter of D.**

**Reference: A Modern Approach to Logical Reasoning** by R.S. Aggarwal, 2nd Edition, Page 192.

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98. A sum ..... interest?

**Correct Answer: (b) 25%**

**Explanation:** The sum quadruples (4 times itself) in 12 years at simple interest. Using the formula:

$SI = (P \times R \times T) / 100$ , and total amount = 4P,

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$3P = (P \times R \times 12) / 100$ , solving gives  $R = 25\%$ .

Reference: Quantitative Aptitude for Competitive Examinations by R.S. Aggarwal, Page 256.

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99. In ..... only Chemistry?

Correct Answer: (b) 20

Explanation: Total students = 60.

- Students studying **both Physics and Chemistry** = 15.
- Students studying **only Chemistry** = 30 (total Chemistry) – 15 (both) = **15**.
- Students studying **only Physics** = 35 (total Physics) – 15 (both) = 20.

Thus, **students studying only Chemistry = 15**.

Reference: Quantitative Aptitude for Competitive Examinations by R.S. Aggarwal, Page 312.

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100. The average ..... largest number?

Correct Answer: (c) 61

Explanation: The average of five consecutive odd numbers is 55. Let the numbers be:

$x - 4, x - 2, x, x + 2, x + 4$ .

Average = Sum / 5, so:

$55 \times 5 = 5x, x = 55$ .

Largest number =  $x + 4 = 61$ .

Reference: Fast Track Objective Arithmetic by Rajesh Verma, 3rd Edition, Page 102.

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