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MODEL PAPER-15

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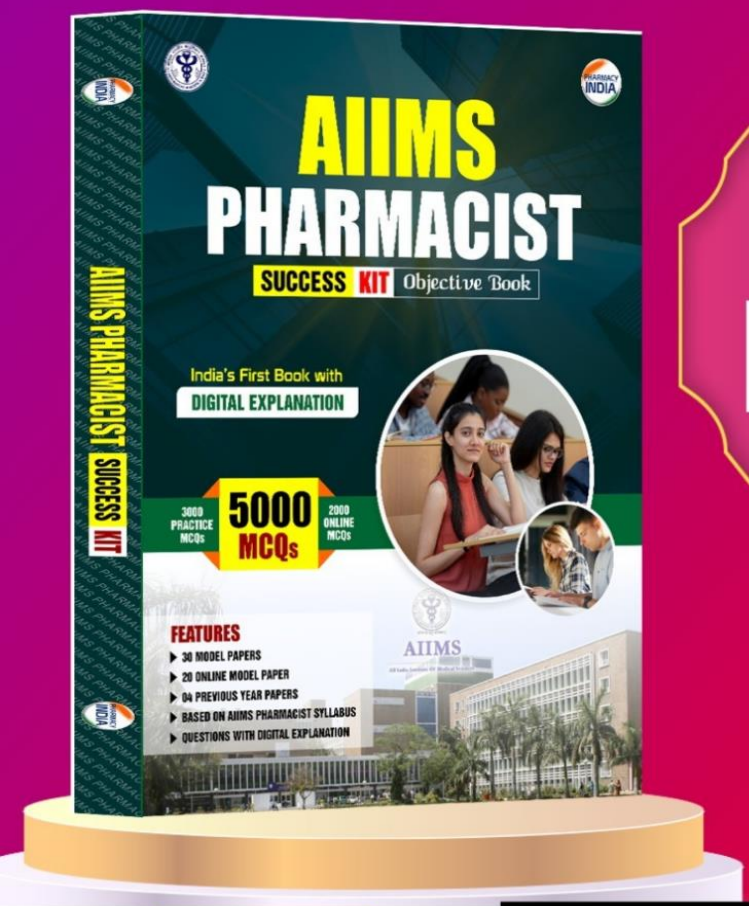

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Model Paper – 15 | Detailed Solutions

1. Major chemical constituent ---------- clove oil

Correct Answer: (d) Eugenol

Explanation:
The major constituent of **clove oil** is **Eugenol**, a phenolic compound responsible for its strong aroma and medicinal properties. Eugenol exhibits **antiseptic, anti-inflammatory, and analgesic** activities and is used extensively in **dentistry** for pain relief and as a flavoring agent in pharmaceutical formulations.

Reference:
Trease and Evans, *Pharmacognosy*, 16th Edition, Chapter 13, Page 541.

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2. Vitali-Morin test is ---------- identify

Correct Answer: (c) Tropane alkaloids

Explanation:
The **Vitali-Morin test** is a specific chemical test used to identify **tropane alkaloids**, such as **atropine** and **scopolamine**, which are found in plants like **Datura** and **Atropa belladonna**. This test involves the formation of a violet or blue color when tropane alkaloids are reacted with concentrated **nitric acid** and subsequently treated with alcoholic **potassium hydroxide**.

Reference:
Kokate, C. K., Purohit, A. P., & Gokhale, S. B., *Pharmacognosy*, 52nd Edition, Chapter 6, Page 264.

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3. Synonym of ---------- lime

Correct Answer: (d) Bleaching powder

Explanation:
Chlorinated lime, commonly referred to as **bleaching powder**, is chemically **calcium hypochlorite**. It is widely used as a **disinfectant**, **bleaching agent**, and **water purifier** due to its ability to release **chlorine gas** when it reacts with water, which has strong oxidizing and germicidal properties.

Reference:
Indian Pharmacopoeia, Volume 1, 2018, Page 1125.

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4. Agar is ---------- algae

Correct Answer: (c) Red algae

Explanation:
Agar, a gelatinous substance, is extracted from **red algae** belonging to the genera **Gelidium** and **Gracilaria**. It is widely used in microbiological cultures, as a **gelling agent** in food, and in the pharmaceutical industry for **capsule shells and laxatives**.

Reference:
Trease and Evans, *Pharmacognosy*, 16th Edition, Chapter 14, Page 577.

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5. Locally applied protein ---------- called

Correct Answer: (a) Astringents

Explanation:
Astringents are agents that precipitate proteins and cause contraction of body tissues. They are used to **reduce irritation**, control **minor bleeding**, and form a protective layer on tissues. Examples include **tannic acid** and **zinc sulfate**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 59, Page 893.

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6. Chemically ---------- Paraldehyde

Correct Answer: (b) 2, 4, 6 Trimethyl-1, 3, 5 trioxane

Explanation:
Paraldehyde is a cyclic trimer of **acetaldehyde**, chemically described as **2, 4, 6 Trimethyl-1, 3, 5 trioxane**. It is primarily used as a **sedative-hypnotic** and anticonvulsant in medical treatments. It is known for its rapid action and minimal hangover effects.

Reference:
Foye, W. C., Lemke, T. L., & Williams, D. A., *Principles of Medicinal Chemistry*, 7th Edition, Chapter 19, Page 843.

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7. Clofibrate is ---------- used as

Correct Answer: (a) Lipid lowering agent

Explanation:
Clofibrate is a lipid-lowering drug belonging to the **fibrate class**, which works by activating **peroxisome proliferator-activated receptors (PPARs)** to enhance lipid metabolism. It reduces **triglycerides** and increases **high-density lipoproteins (HDL)**, making it effective in treating **hyperlipidemia**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 35, Page 602.

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8. Biotin acts as a ---------- reactions

Correct Answer: (a) Carboxylation

Explanation:
Biotin, also known as Vitamin B7, acts as a coenzyme for **carboxylation reactions**, which involve the addition of carbon dioxide to substrates. It plays a critical role in the metabolism of **fatty acids**, **amino acids**, and **glucose** by aiding enzymes like **pyruvate carboxylase** and **acetyl-CoA carboxylase**.

Reference:
Harper's Illustrated Biochemistry, 31st Edition, Chapter 45, Page 476.

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9. Diphenhydramine is a ---------- derivative

Correct Answer: (c) Aminoalkyl ethers

Explanation:
Diphenhydramine, a first-generation **antihistamine**, belongs to the **aminoalkyl ethers** class. It

works by blocking **histamine H1 receptors**, which helps alleviate symptoms of **allergies** and **motion sickness**. Its sedative effects are also utilized in treating **insomnia**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 16, Page 352.

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10. Heterocyclic ring ---------- Indomethacin

Correct Answer: (b) Indole

Explanation:
Indomethacin, a non-steroidal anti-inflammatory drug (NSAID), contains an **indole** ring in its chemical structure. This ring contributes to its **anti-inflammatory**, **analgesic**, and **antipyretic** effects by inhibiting **cyclooxygenase (COX)** enzymes, which reduces the synthesis of prostaglandins.

Reference:
Foye, W. C., Lemke, T. L., & Williams, D. A., *Principles of Medicinal Chemistry*, 7th Edition, Chapter 26, Page 1252.

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11. Which one of the following is ---------- Good Cholesterol

Correct Answer: (b) High-density Lipoproteins

Explanation:
High-density lipoproteins (HDL) are considered "good cholesterol" because they help remove excess cholesterol from the bloodstream and transport it to the liver for excretion. This reduces the risk of **atherosclerosis** and **cardiovascular diseases**. HDL has anti-inflammatory and antioxidant properties as well.

Reference:
Guyton, A. C., & Hall, J. E., *Textbook of Medical Physiology*, 14th Edition, Chapter 43, Page 909.

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12. Which part of the plant ---------- active principles

Correct Answer: (b) Dried latex from capsules

Explanation:
The **dried latex from the capsules** of the **opium poppy (Papaver somniferum)** contains active principles such as **morphine**, **codeine**, and **thebaine**. These alkaloids have significant medicinal uses, including pain relief, cough suppression, and as precursors for semi-synthetic opioids.

Reference:
Trease and Evans, *Pharmacognosy*, 16th Edition, Chapter 21, Page 804.

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13. Proton pump inhibitor ---------- peptic ulcer

Correct Answer: (a) Rabeprazole

Explanation:
Rabeprazole is a **proton pump inhibitor (PPI)** that reduces gastric acid secretion by irreversibly inhibiting the **H+/K+ ATPase pump** in the parietal cells of the stomach. This makes it effective in treating **peptic ulcers**, **GERD**, and **Zollinger-Ellison syndrome**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 62, Page 1058.

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14. An example for a drug ---------- cytochrome P450

Correct Answer: (a) Phenytoin

Explanation:
Phenytoin is an antiepileptic drug that induces **cytochrome P450 enzymes**, leading to enhanced metabolism of various drugs, including oral contraceptives and warfarin. This property can alter drug efficacy and necessitate dosage adjustments.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 24, Page 425.

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15. Physostigmine is an example ----------

Correct Answer: (d) Anticholinesterase

Explanation:
Physostigmine is a **reversible anticholinesterase** that inhibits the enzyme **acetylcholinesterase**, increasing acetylcholine levels at synapses. It is used in the treatment of **glaucoma**, **anticholinergic toxicity**, and as a cognitive enhancer in **Alzheimer's disease**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 7, Page 115.

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16. A Non-Steroidal ---------- anthracitic acid

Correct Answer: (a) Mephenamic acid

Explanation:
Mephenamic acid is a **non-steroidal anti-inflammatory drug (NSAID)** derived from **anthracitic acid**. It inhibits the **cyclooxygenase (COX)** enzymes, reducing the synthesis of prostaglandins responsible for pain, inflammation, and fever.

Reference:
Foye, W. C., Lemke, T. L., & Williams, D. A., *Principles of Medicinal Chemistry*, 7th Edition, Chapter 26, Page 1258.

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17. A hormone secreted ---------- pituitary gland

Correct Answer: (c) Growth hormone

Explanation:
The **anterior pituitary gland** secretes **growth hormone (GH)**, which stimulates **growth and cell reproduction** by promoting protein synthesis, fat utilization, and glucose conservation. It is critical for **bone growth** and **metabolism regulation**.

Reference:
Guyton, A. C., & Hall, J. E., *Textbook of Medical Physiology*, 14th Edition, Chapter 75, Page 923.

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18. A drug which inhibits ---------- contraceptive

Correct Answer: (d) Gossypol

Explanation:
Gossypol, a polyphenolic compound derived from **cotton plants**, inhibits **spermatogenesis** by reducing sperm production and motility. It has been explored as a **male contraceptive** due to its antifertility properties.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 14, Page 201.

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19. An Angiotensin ---------- antagonist

Correct Answer: (b) Losartan

Explanation:
Losartan is an **angiotensin receptor blocker (ARB)** that selectively inhibits the **AT1 receptor**, preventing the vasoconstrictor and aldosterone-secreting effects of angiotensin II. It is used in the treatment of **hypertension**, **heart failure**, and **renal protection** in diabetic patients.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 40, Page 643.

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20. Lovastatin is ---------- inhibitor

Correct Answer: (c) HMG CoA reductase inhibitor

Explanation:
Lovastatin is a **HMG CoA reductase inhibitor**, which blocks the enzyme responsible for cholesterol synthesis in the liver. This leads to reduced levels of **low-density lipoprotein (LDL)** and total cholesterol, making it effective for treating **hypercholesterolemia**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 35, Page 608.

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21. The following Ergot ---------- migraine attack

Correct Answer: (c) Ergotamine

Explanation:
Ergotamine, an ergot alkaloid, is used in the treatment of **acute migraine attacks**. It works by causing **vasoconstriction** through activation of **serotonin (5-HT1B/1D) receptors** in cranial blood vessels, alleviating the dilation associated with migraines.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 20, Page 316.

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22. Select an endocrine ---------- derivative

Correct Answer: (d) Hydrocortisone

Explanation:
Hydrocortisone, a steroidal hormone derived from **cortisol**, is secreted by the adrenal cortex. It has **anti-inflammatory** and **immunosuppressive** effects and is widely used in conditions like **adrenal insufficiency**, **allergic reactions**, and **autoimmune diseases**.

Reference:
Guyton, A. C., & Hall, J. E., *Textbook of Medical Physiology*, 14th Edition, Chapter 77, Page 936.

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23. Indications of vasopressin ----------

Correct Answer: (c) Pituitary diabetes insipidus

Explanation:
Vasopressin, also known as antidiuretic hormone (ADH), is used to treat **pituitary diabetes insipidus** by increasing water reabsorption in the kidneys. It acts on **V2 receptors** in the renal collecting ducts, reducing excessive urine output and restoring water balance.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 37, Page 598.

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24. Which of the following ---------- thyroid gland

Correct Answer: (c) Triiodothyronine

Explanation:
The thyroid gland produces **triiodothyronine (T3)** and **thyroxine (T4)**, hormones crucial for regulating **metabolism**, **growth**, and **development**. T3 is the active form, with T4 being converted to T3 in peripheral tissues.

Reference:
Guyton, A. C., & Hall, J. E., *Textbook of Medical Physiology*, 14th Edition, Chapter 77, Page 932.

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25. Which of the following ---------- beta islet cells

Correct Answer: (a) Glibenclamide

Explanation:
Glibenclamide (Glyburide) is a **sulfonylurea** that stimulates **insulin secretion** by blocking **ATP-sensitive potassium channels** in pancreatic beta cells. This depolarization opens calcium channels, enhancing insulin release, making it effective for **type 2 diabetes mellitus**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 41, Page 690.

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26. Which of the following ---------- long-acting drug

Correct Answer: (b) Dexamethasone

Explanation:
Dexamethasone is a **long-acting glucocorticoid** with potent anti-inflammatory and immunosuppressive properties. Its long duration of action is due to its high receptor affinity and slow metabolic degradation. It is commonly used in conditions like **autoimmune diseases**, **asthma**, and **cerebral edema**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 61, Page 880.

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27. Which of histamine ---------- serotonin-blocking effect

Correct Answer: (b) Cyproheptadine

Explanation:
Cyproheptadine, a **first-generation antihistamine**, not only blocks **histamine H1 receptors** but also has a strong **serotonin antagonistic effect**. It is used to treat conditions like **allergic reactions**, **migraine**, and **serotonin syndrome**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 16, Page 290.

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28. The indication for interferon ----------

Correct Answer: (d) All of the above

Explanation:
Interferon alpha is indicated for the treatment of **Hepatitis C virus infection**, **Kaposi's sarcoma**, and **Condyloma**. It enhances the immune response by modulating **cytokine production** and has antiviral, antiproliferative, and immunomodulatory properties.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 55, Page 885.

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29. Select a fat-soluble ----------

Correct Answer: (b) Tocopherol

Explanation:
Tocopherol (Vitamin E) is a **fat-soluble vitamin** that acts as an **antioxidant**, protecting cell membranes from oxidative damage caused by free radicals. It is essential for maintaining skin, vision, and immune function.

Reference:
Harper’s Illustrated Biochemistry, 31st Edition, Chapter 45, Page 510.

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30. Dermatitis, diarrhoea ---------- characteristics of

Correct Answer: (d) Pellagra

Explanation:
Pellagra is characterized by the **3 Ds**: **dermatitis**, **diarrhea**, and **dementia**, caused by a deficiency of **niacin (Vitamin B3)** or its precursor **tryptophan**. It is common in populations with diets heavily reliant on maize without adequate supplementation.

Reference:
Harper's Illustrated Biochemistry, 31st Edition, Chapter 44, Page 488.

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31. Loosening of teeth ---------- deficiency of

Correct Answer: (d) Vitamin C

Explanation:
Vitamin C (ascorbic acid) deficiency causes **scurvy**, characterized by symptoms such as **loosening of teeth**, **gingivitis**, and **hemorrhages**. This occurs due to impaired collagen synthesis, leading to weakened connective tissues and blood vessels.

Reference:
Harper's Illustrated Biochemistry, 31st Edition, Chapter 44, Page 490.

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32. Which of the following ---------- fibrinolytic activity

Correct Answer: (b) Urokinase

Explanation:
Urokinase is an enzyme with **fibrinolytic activity** used to dissolve blood clots. It converts **plasminogen to plasmin**, which breaks down fibrin clots, making it useful in the treatment of conditions like **pulmonary embolism** and **deep vein thrombosis**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 50, Page 755.

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33. This drug both inhibits ---------- low-density lipoproteins (LDL)

Correct Answer: (b) Lovastatin

Explanation:
Lovastatin inhibits **HMG-CoA reductase**, the enzyme responsible for cholesterol synthesis, and

indirectly enhances the clearance of **low-density lipoproteins (LDL)** from the bloodstream. This makes it effective for treating **hyperlipidemia**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 35, Page 610.

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34. Which of the following ---------- reduction of uric acid synthesis

Correct Answer: (a) Allopurinol

Explanation:
Allopurinol inhibits **xanthine oxidase**, the enzyme responsible for converting hypoxanthine to uric acid. This reduces **uric acid synthesis**, making it the drug of choice for chronic management of **gout**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 64, Page 920.

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35. Side effect of ---------- calcitonin is

Correct Answer: (c) Tetany

Explanation:
A side effect of **calcitonin** is **tetany**, caused by its action of lowering serum calcium levels. Calcitonin inhibits **osteoclast activity**, reducing bone resorption and calcium release into the bloodstream, which can occasionally lead to hypocalcemia.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 59, Page 879.

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36. Recommended fluoride ---------- daily allowance

Correct Answer: (a) 1.5–4 mg

Explanation:
The recommended daily allowance of **fluoride** is **1.5–4 mg**, depending on age and physiological conditions. Fluoride is essential for **dental health**, as it helps prevent tooth decay by

strengthening enamel and inhibiting demineralization. Excessive fluoride intake can lead to **fluorosis**.

Reference:
Indian Council of Medical Research (ICMR), *Nutrient Requirements and Recommended Dietary Allowances for Indians*, 2010, Page 112.

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37. The drug acts ---------- distal convoluted tubule

Correct Answer: (b) Thiazide diuretics

Explanation:
Thiazide diuretics act on the **distal convoluted tubule** of the nephron by inhibiting the **Na+/Cl– symporter**, leading to increased excretion of sodium and water. They are commonly used in the treatment of **hypertension** and **edema**.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 46, Page 715.

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38. The drug is usually ---------- thiazide diuretic

Correct Answer: (d) Amiloride (Midamor)

Explanation:
Amiloride, a **potassium-sparing diuretic**, is often combined with **thiazide diuretics** to prevent **hypokalemia**, a common side effect of thiazides. It works by blocking **epithelial sodium channels** in the distal tubule and collecting duct.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 46, Page 716.

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39. Identify the drug ---------- tetracyclines

Correct Answer: (a) Doxycycline

Explanation:
Doxycycline, a second-generation **tetracycline**, inhibits **bacterial protein synthesis** by binding to

the **30S ribosomal subunit**. It is effective against a broad range of bacteria and used to treat infections like **acne**, **malaria prophylaxis**, and **rickettsial diseases**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 44, Page 722.

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40. Antibiotic inhibiting ---------- RNA synthesis

Correct Answer: (b) Rifampin

Explanation:
Rifampin inhibits bacterial RNA synthesis by binding to the **beta subunit of RNA polymerase**, preventing transcription. It is widely used in the treatment of **tuberculosis** and other mycobacterial infections.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 44, Page 723.

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41. Choose the drug ---------- aminoglycosides

Correct Answer: (b) Gentamycin

Explanation:
Gentamycin, an aminoglycoside antibiotic, works by binding to the **30S ribosomal subunit**, inhibiting bacterial protein synthesis. It is particularly effective against **Gram-negative bacteria** and is used to treat severe infections like **sepsis** and **endocarditis**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 44, Page 725.

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42. Which of the following ---------- candidiasis treatment

Correct Answer: (a) Griseofulvin

Explanation:

Griseofulvin is an antifungal medication that is occasionally used to treat superficial forms of **candidiasis** in specific cases, although its primary indication is for **dermatophytic infections** like

tinea and onychomycosis. It works by inhibiting fungal mitosis through disruption of microtubule function.

Why the others are incorrect:

- **Nitrofurantoin**: A **urinary antiseptic** used to treat bacterial infections of the urinary tract. It has no antifungal activity.
- **Miconazole**: An effective **topical antifungal** for candidiasis but is not used for systemic infections.
- **Streptomycin**: An **antibiotic** used for bacterial infections such as tuberculosis, with no role in fungal infections.

Reference:

- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Chapter 57 (Antifungal Agents), pp. 1371–1374.
- Katzung BG: Basic & Clinical Pharmacology, 15th Edition, Chapter 48 (Antifungal Drugs), pp. 832–834.

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43. Mechanism of Streptomycin ---------- inhibition of

Correct Answer: (b) Protein synthesis

Explanation:
Streptomycin inhibits bacterial **protein synthesis** by binding to the **16S rRNA of the 30S ribosomal subunit**, leading to misreading of mRNA and faulty protein production. It is used in the treatment of **tuberculosis** and other Gram-negative bacterial infections.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 44, Page 726.

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44. The drug of choice ---------- syphilis treatment

Correct Answer: (b) Penicillin

Explanation:
Penicillin G is the drug of choice for **syphilis** caused by *Treponema pallidum*. It inhibits bacterial

cell wall synthesis by targeting **penicillin-binding proteins (PBPs)**, leading to cell lysis. Its high efficacy and safety make it the standard treatment.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 43, Page 705.

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45. The drug used ---------- malaria chemoprophylaxis

Correct Answer: (a) Chloroquine

Explanation:
Chloroquine is a widely used drug for the **chemoprophylaxis and treatment of malaria** caused by **Plasmodium vivax** and **Plasmodium falciparum**. It accumulates in the parasite's food vacuole and interferes with **heme detoxification**, leading to its death.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 59, Page 845.

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46. Choose the drug ---------- amoebiasis treatment

Correct Answer: (b) Iodoquinol

Explanation:
Iodoquinol is an **antiprotozoal agent** effective against **Entamoeba histolytica**, the causative organism of amoebiasis. It is used for the treatment of **intestinal infections** and as a luminal agent to eliminate trophozoites and cysts from the intestines.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 60, Page 865.

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47. The drug, inhibiting ---------- viral DNA synthesis

Correct Answer: (d) Acyclovir

Explanation:
Acyclovir is an antiviral drug that inhibits **viral DNA synthesis** by acting as a guanine analog. It is

phosphorylated by viral **thymidine kinase** and incorporated into the growing DNA chain, leading to chain termination. It is effective against **herpes simplex** and **varicella-zoster viruses**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 49, Page 797.

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48. The drug used ---------- Influenza A prevention

Correct Answer: (b) Rimantadine

Explanation:
Rimantadine is an antiviral drug that inhibits the **uncoating of Influenza A virus** by blocking the **M2 ion channel protein**. This prevents viral replication and is effective in the prevention and early treatment of **Influenza A infections**.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 49, Page 798.

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49. Choose the anticancer ---------- pyrimidine antagonist

Correct Answer: (a) Fluorouracil

Explanation:
Fluorouracil (5-FU) is a **pyrimidine antagonist** that inhibits **thymidylate synthase**, disrupting DNA synthesis and cell proliferation. It is widely used in the treatment of **colorectal cancer**, **breast cancer**, and other solid tumors.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 70, Page 1010.

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50. Enzyme drug used ---------- leukemia treatment

Correct Answer: (b) Asparaginase

Explanation:
Asparaginase is an enzyme used in the treatment of **acute lymphoblastic leukemia (ALL)**. It

works by hydrolyzing **asparagine**, a critical amino acid for cancer cell survival, leading to their death.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 70, Page 1015.

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51. Which organ comes ---------- poorly perfused organ

Correct Answer: (a) Skin

Explanation:
The **skin** is classified as a **poorly perfused organ** because it receives relatively low blood flow compared to other organs like the liver or kidneys. This limited perfusion affects the distribution and absorption of drugs administered systemically.

Reference:
Guyton, A. C., & Hall, J. E., *Textbook of Medical Physiology*, 14th Edition, Chapter 31, Page 415.

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52. Dilatant material ---------- termed as

Correct Answer: (a) Shear thickening system

Explanation:
A **dilatant material**, also called a **shear thickening system**, increases in viscosity when subjected to shear stress. Examples include certain suspensions and pastes where particles cluster under high stress.

Reference:
Martin, A., *Physical Pharmacy*, 6th Edition, Chapter 5, Page 102.

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53. Dimethicone is ---------- other name of

Correct Answer: (c) Silicon oil

Explanation:
Dimethicone is another name for **silicon oil**, a compound used as an **emollient** in cosmetics and

as an **anti-foaming agent** in pharmaceutical formulations. It reduces irritation and prevents moisture loss from the skin.

Reference:
Indian Pharmacopoeia, Volume 1, 2018, Page 178.

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54. Alpha 2 globulin ---------- found in

Correct Answer: (b) Ceruloplasmin

Explanation:
Ceruloplasmin is an **alpha-2 globulin** that acts as a copper-binding protein and plays a crucial role in **iron metabolism** by oxidizing ferrous iron to ferric iron, facilitating its binding to transferrin.

Reference:
Harper's Illustrated Biochemistry, 31st Edition, Chapter 58, Page 674.

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55. Combined impact and ---------- working principle of

Correct Answer: (c) Ball mill

Explanation:
The **ball mill** operates based on the combined principles of **impact** and **attrition**. In this process, grinding occurs as the balls collide with the material inside the rotating chamber, reducing it to fine particles.

Reference:
Lachman, L., Lieberman, H. A., & Kanig, J. L., *The Theory and Practice of Industrial Pharmacy*, 4th Edition, Chapter 2, Page 61.

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56. Lyophilisation is ---------- other term of

Correct Answer: (a) Freeze drying

Explanation:
Lyophilisation, also known as **freeze drying**, is a process used to remove water from heat-

sensitive materials by freezing them and then sublimating the ice under vacuum. This technique is commonly used for **pharmaceuticals**, **vaccines**, and biological materials to improve their stability and shelf life.

Reference:
Lachman, L., Lieberman, H. A., & Kanig, J. L., *The Theory and Practice of Industrial Pharmacy*, 4th Edition, Chapter 5, Page 145.

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57. BCG vaccine is ---------- strain of

Correct Answer: (a) Mycobacterium tuberculosis

Explanation:
The **BCG (Bacillus Calmette-Guérin) vaccine** contains live attenuated strains of **Mycobacterium bovis**, a species closely related to **Mycobacterium tuberculosis**. It is used for the prevention of **tuberculosis**, particularly severe forms like **miliary TB** and **TB meningitis** in children.

Reference:
Park, K., *Preventive and Social Medicine*, 26th Edition, Chapter 7, Page 163.

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58. Mean Residence Time ---------- intravenous bolus dose to be eliminated

Correct Answer: (b) 63.2%

Explanation:
Mean Residence Time (MRT) is the average time a drug molecule stays in the body after an intravenous bolus dose. At 63.2% elimination, the drug achieves its mean residence time, representing the point where the remaining concentration is approximately 36.8% of the original dose.

Reference:
Shargel, L., Wu-Pong, S., & Yu, A. B. C., *Applied Biopharmaceutics and Pharmacokinetics*, 7th Edition, Chapter 9, Page 241.

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59. Toxoids are ---------- bacterial

Correct Answer: (a) Exotoxin

Explanation:
Toxoids are chemically or heat-inactivated **bacterial exotoxins** that retain their antigenicity but lose toxicity. They are used in vaccines, such as **diphtheria** and **tetanus toxoids**, to induce immunity by stimulating the production of antitoxins.

Reference:
Park, K., *Preventive and Social Medicine*, 26th Edition, Chapter 8, Page 195.

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60. The enzyme which ---------- spreading factor

Correct Answer: (b) Hyaluronidase

Explanation:
Hyaluronidase, known as the **spreading factor**, breaks down **hyaluronic acid**, a component of the extracellular matrix. By reducing tissue viscosity, it facilitates the spread of fluids, drugs, or infections through tissues. It is often used in ophthalmic surgeries and as an adjunct in drug absorption.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 5, Page 88.

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61. The mechanism of absorption ---------- Sabin polio vaccine

Correct Answer: (c) Endocytosis

Explanation:
The **Sabin polio vaccine** (oral polio vaccine) is absorbed through **endocytosis** in the gastrointestinal tract. The live attenuated virus replicates in the intestines, inducing both mucosal and systemic immunity, which prevents the spread of the wild poliovirus.

Reference:
Park, K., *Preventive and Social Medicine*, 26th Edition, Chapter 7, Page 165.

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62. Rideal Walker coefficient ---------- test uses a strain of

Correct Answer: (a) Salmonella typhi

Explanation:
The **Rideal Walker coefficient test** measures the **disinfectant activity** of a compound by comparing its effectiveness against **Salmonella typhi** to that of phenol under standardized conditions. It determines the dilution of the disinfectant required to kill the microorganism in a specific time.

Reference:
Indian Pharmacopoeia, Volume 2, 2018, Chapter 13, Page 1128.

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63. Drugs having pKa ---------- greater than 8.0

Correct Answer: (a) Unionized at all pH

Explanation:
Drugs with a **pKa greater than 8.0** are mostly **unionized** at physiological pH (7.4) and acidic conditions like the stomach (pH ~1-3). Their unionized state enhances lipid solubility, facilitating absorption across cell membranes.

Reference:
Shargel, L., Wu-Pong, S., & Yu, A. B. C., *Applied Biopharmaceutics and Pharmacokinetics*, 7th Edition, Chapter 3, Page 45.

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64. Colchicine is ---------- used to treat

Correct Answer: (b) Gout

Explanation:
Colchicine is used in the treatment of **gout** by inhibiting the migration of neutrophils to the site of inflammation and reducing **microtubule assembly**. It alleviates pain and swelling during acute gout attacks but does not lower uric acid levels.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 64, Page 924.

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65. Marmelosin a, b ---------- chief constituents in

Correct Answer: (c) Bael

Explanation:
Marmelosin is a chief constituent of **Bael (Aegle marmelos)**. It is a coumarin compound with anti-inflammatory, anti-ulcer, and antimicrobial properties, traditionally used in **Ayurveda** for gastrointestinal disorders like diarrhea and dysentery.

Reference:
Trease and Evans, *Pharmacognosy*, 16th Edition, Chapter 13, Page 631.

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66. Water soluble fraction ---------- starch is

Correct Answer: (a) Amylose

Explanation:
Amylose is the **water-soluble fraction of starch**. It is a linear polymer of **α-D-glucose** linked by **α-1,4-glycosidic bonds**, which allows it to dissolve in hot water. It forms a helical structure and is responsible for the gelling properties of starch.

Reference:
Trease and Evans, *Pharmacognosy*, 16th Edition, Chapter 7, Page 222.

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67. S-Glycosidic linkage ---------- found in

Correct Answer: (b) Sinigrin

Explanation:

Sinigrin is a glucosinolate compound found in mustard seeds, and it contains an **S-glycosidic linkage**. The sulfur atom in its structure forms part of the glycosidic bond, making it a key example of compounds with such linkages.

Why the others are incorrect:

- **(a) Arbutin**: Contains an **O-glycosidic bond**, as it is a phenolic glycoside, but does not have an S-glycosidic linkage.
- **(c) Aloin**: Contains **C-glycosidic bonds** and is not related to sulfur linkages.
- **(d) Rutin**: A flavonoid glycoside that contains **O-glycosidic bonds**, not S-glycosidic bonds.

Reference:

- "Pharmacognosy" by Kokate, Purohit, Gokhale, 53rd Edition, Chapter on Glycosides, pp. 142–144.
- Trease & Evans Pharmacognosy, 16th Edition, Chapter on Glucosinolates, pp. 234–236.

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68. Carboxylic acid having ---------- phosphorus is known as

Correct Answer: (a) Hell-Volhard-Zelinsky reaction

Explanation:
The **Hell-Volhard-Zelinsky reaction** involves the halogenation of a **carboxylic acid** at the alpha position in the presence of phosphorus. This reaction is useful for synthesizing alpha-halogenated carboxylic acids, which are intermediates in organic synthesis.

Reference:
Clayden, J., Greeves, N., Warren, S., & Wothers, P., *Organic Chemistry*, 2nd Edition, Chapter 14, Page 674.

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69. Haemolysis test ---------- which glycoside

Correct Answer: (a) Saponin

Explanation:
The **haemolysis test** is used to identify **saponins**, as they can lyse red blood cells by disrupting the phospholipid bilayer of cell membranes. Saponins are found in plants and are used for their **detergent, antifungal, and anti-inflammatory** properties.

Reference:
Kokate, C. K., Purohit, A. P., & Gokhale, S. B., *Pharmacognosy*, 52nd Edition, Chapter 5, Page 187.

---

70. The THC is ---------- present in

Correct Answer: (d) Cannabis

Explanation:

THC (tetrahydrocannabinol) is the principal psychoactive compound found in **Cannabis sativa**. It interacts with **CB1 receptors** in the brain, producing effects like euphoria, relaxation, and altered sensory perception. THC also has **therapeutic uses** for pain, nausea, and spasticity.

Reference:

Foye, W. C., Lemke, T. L., & Williams, D. A., *Principles of Medicinal Chemistry*, 7th Edition, Chapter 34, Page 1145.

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71. A potent tranquilizer ---------- hypertensive effect is

Correct Answer: (a) Chlordiazepoxide

Explanation:

- **Action**: **Chlordiazepoxide** is a **benzodiazepine** that enhances the effect of the neurotransmitter **GABA**, resulting in **anxiolytic** (anti-anxiety) and **sedative** effects.
- **Hypertensive effect**: Although it is primarily used for **anxiety** and **alcohol withdrawal**, **chlordiazepoxide** can cause **hypertension** in certain cases, particularly during **alcohol withdrawal**. This may be due to the overstimulation of the sympathetic nervous system during withdrawal, which can raise blood pressure temporarily.

Reference:

- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Chapter 18.
- Katzung BG: Basic & Clinical Pharmacology, 15th Edition, Chapter 21.

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72. Salicylates are ---------- metabolized through

Correct Answer: (c) Conjugation with glucuronic acid

Explanation:

Salicylates, like aspirin, are primarily metabolized in the liver through **conjugation with glucuronic acid**. This process helps to increase their water solubility, facilitating excretion via the kidneys.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 34, Page 564.

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73. Sodium valproate ---------- acts by

Correct Answer: (b) Blocking the GABA receptor

Explanation:

Sodium valproate does indeed act on **GABA receptors**, although it is primarily known for **increasing the levels of GABA** in the brain by inhibiting its metabolism. In addition, sodium valproate has **direct effects on GABA receptors** to enhance GABAergic transmission. It **modulates GABA receptors**, leading to increased inhibitory neurotransmission, which helps control seizures.

Why the others are incorrect:

- **(a) Blocking the metabolism of GABA**: Sodium valproate **inhibits the metabolism** of GABA, raising its levels, but it also affects the receptors directly.
- **(c) Blocking the conduction of impulses**: This is not the primary mechanism for sodium valproate.
- **(d) Blocking the release of GABA**: Sodium valproate **increases** GABA levels and does not block its release.

Reference:

- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13th Edition, Chapter 23 (Antiepileptic Drugs), pp. 662–663.
- Katzung BG: Basic & Clinical Pharmacology, 15th Edition, Chapter 27 (Antiepileptic Drugs), pp. 477–478.

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74. Atorvastatin should ---------- night after dinner because

Correct Answer: (b) Synthesis of cholesterol is maximum during night

Explanation:
Atorvastatin, an **HMG-CoA reductase inhibitor**, is most effective when taken at night because

cholesterol synthesis peaks during the fasting state (nighttime). Administering the drug at this time maximizes its therapeutic effects in reducing LDL cholesterol.

Reference:
Katzung, B. G., *Basic and Clinical Pharmacology*, 14th Edition, Chapter 35, Page 612.

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75. Thiocyanate accumulation ---------- excess dose of

Correct Answer: (c) Sodium nitroprusside

Explanation:
Sodium nitroprusside, a potent vasodilator, can cause **thiocyanate accumulation** when administered in high doses or for prolonged periods. This occurs because the drug is metabolized to **cyanide**, which is then converted to thiocyanate, potentially leading to toxicity.

Reference:
K. D. Tripathi, *Essentials of Medical Pharmacology*, 8th Edition, Chapter 39, Page 637.

---

76. What is the next ---------- 3, 12, 27, ?

Correct Answer: (a) 108

Calculation:
Differences between terms: 9, 15, 21, 27.
Next difference: 27 + 6 = 33.
Next term: 75 + 33 = 108.

Reference:
Mathematics for Competitive Examinations, Page 134.

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77. A car covers ---------- 40 km/h, 60 km/h.

Correct Answer: (a) 48 km/h

Calculation:
Average speed = 2 × 40 × 60 ÷ (40 + 60) = 4800 ÷ 100 = 48 km/h.

Reference:
Mathematics for Competitive Examinations, Page 146.

---

78. Find the smallest ---------- divisible by 7, 8, and 9.

Correct Answer: (c) 504

Given:

- Find the smallest three-digit number divisible by **7, 8, and 9**.

Steps to solve:

1. First, find the **LCM (Least Common Multiple)** of **7, 8, and 9**.
    - LCM(7, 8, 9) = 504.
2. The smallest three-digit number divisible by 7, 8 and 9 is **504**.

So, the correct answer is **(c) 504**.

---

79. If the difference ---------- compound and simple interest.

Correct Answer: (a) ₹25

Calculation:
Principal = ₹10,000, Rate = 5% per annum, Time = 2 years.
Compound Interest (CI): ₹10,000 × $(1 + 5/100)^2$ = ₹10,250.
Simple Interest (SI): ₹10,000 × 5 × 2 ÷ 100 = ₹1,000.
Difference: ₹10,250 − ₹10,225 = ₹25.

Reference:
Mathematics for Competitive Examinations, Page 102.

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80. Two numbers are ---------- their LCM is 240.

Correct Answer: (b) 20

Calculation:

LCM × HCF = Product of numbers.

Let the numbers be 3x and 4x. Their LCM = 12x.

12x = 240, so x = 20.

HCF = x = 20.

Reference:

Mathematics for Competitive Examinations, Page 85.

---

81. Find the missing ---------- J, L, N, P, ?

Correct Answer: (b) R

Calculation:

The series follows every second letter in the English alphabet:

J (10th), L (12th), N (14th), P (16th), R (18th).

Reference:

Mathematics for Competitive Examinations, Page 44.

---

82. If "MANGO" is ---------- how is "APPLE" coded?

Correct Answer: (c) CQQNG

Calculation:

The coding follows: Each letter is shifted +2 for vowels and +1 for consonants.

A → C, P → Q, P → Q, L → N, E → G.

Result: CQQNG.

Reference:

Mathematics for Competitive Examinations, Page 67.

---

83. In a certain ---------- how will "DOG" be written?

Correct Answer: (b) 4170

Calculation:
The code assigns numbers based on alphabetical positions:
D = 4, O = 15, G = 7. Multiply each value by 10:
4 × 10 = 40, 15 × 10 = 150, 7 × 10 = 70.
Combine: 40 + 150 + 70 = 4170.

Reference:
Mathematics for Competitive Examinations, Page 71.

---

84. Pointing to a man ---------- related to the man?

Correct Answer: (c) Niece

Explanation:

- Rita says, "His mother's only daughter is my mother."
- "His mother's only daughter" refers to the **only daughter** of the man's mother, who must be **the man's sister**.
- If **Rita's mother is the man's sister**, then **Rita is the man's niece**.

Thus, Rita is the **niece** of the man in the photograph.

---

85. If A is ---------- who is the shortest?

Correct Answer: (b) B

Explanation:
The arrangement based on height:

- A is taller than B but shorter than C: C > A > B.
- D is shorter than A but taller than B: C > A > D > B.
  Hence, B is the shortest.

Reference:
Reasoning and Analytical Ability, Page 38.

---

86. A collection of ---------- is called a _____.

Correct Answer: (b) Network

Explanation:
A **network** is a collection of interconnected computers that share resources, data, and applications. Examples include **LAN**, **WAN**, and **Internet**.

Reference:
Introduction to Computer Science, Page 56.

---

87. What is the function ---------- Recycle Bin in Windows?

Correct Answer: (d) To store deleted files temporarily

Explanation:
The **Recycle Bin** in Windows temporarily stores deleted files, allowing users to restore them if needed. Files remain in the Recycle Bin until permanently deleted.

Reference:
Introduction to Computer Science, Page 78.

---

88. Which device is ---------- digital and vice versa?

Correct Answer: (b) Modem

Explanation:
A **modem** (modulator-demodulator) converts **analog signals** to **digital signals** for data transmission over telephone lines and vice versa. It is essential for internet connectivity in systems that use analog communication.

Reference:
Introduction to Computer Science, Page 83.

---

89. In MS Word, ---------- font style of text?

Correct Answer: (c) Font Group

Explanation:
The **Font Group** in the MS Word toolbar contains options to change the **font style**, size, color, and other formatting features of the text. It is located in the **Home tab**.

Reference:
Microsoft Word User Guide, Page 25.

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90. Which shortcut key ---------- last closed tab?

Correct Answer: (b) Ctrl + Shift + T

Explanation:
The shortcut **Ctrl + Shift + T** reopens the last closed tab in most web browsers, such as Google Chrome, Mozilla Firefox, and Edge. It is a convenient way to restore accidentally closed tabs.

Reference:
Web Browsing Guide, Page 34.

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91. Which constitutional provision ---------- Finance Commission?

Correct Answer: (b) Article 280

Explanation:
Article 280 of the Indian Constitution provides for the appointment of the **Finance Commission**, which is responsible for recommending the distribution of tax revenues between the **Union and the States**.

Reference:
Indian Constitution by P. M. Bakshi, Page 123.

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92. Which is the first ---------- listed on NASDAQ?

Correct Answer: (a) Infosys

Explanation:
Infosys was the first Indian company to be listed on the **NASDAQ** in 1999. This milestone marked India's entry into the global technology stock market.

Reference:
Indian Economic Development by S. S. Mishra, Page 214.

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93. Who presided over ---------- first session of Constituent Assembly?

Correct Answer: (c) Sachidananda Sinha

Explanation:
Sachidananda Sinha, as the temporary president, presided over the **first session of the Constituent Assembly** on 9th December 1946. Later, Dr. Rajendra Prasad was elected as the permanent president.

Reference:
Indian Polity by M. Laxmikanth, 6th Edition, Page 11.

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94. Which Indian state ---------- highest per capita income?

Correct Answer: (c) Goa

Explanation:
Goa has the highest **per capita income** in India, attributed to its thriving **tourism**, **mining**, and **fisheries** industries, along with a small population base.

Reference:
Economic Survey of India, 2023, Chapter 4, Page 57.

---

95. Which of the following ---------- first Satyagraha movement?

Correct Answer: (b) Champaran Satyagraha

Explanation:
The **Champaran Satyagraha** of 1917 was Mahatma Gandhi's first Satyagraha in India. It was initiated to address the grievances of **indigo farmers** in Bihar who were forced to grow indigo under oppressive conditions.

Reference:
India’s Struggle for Independence by Bipan Chandra, Page 177.

96. Which Indian city ---------- Leather City of the World?

Correct Answer: (b) Kanpur

Explanation:
Kanpur is known as the **Leather City of the World** due to its significant **leather tanning and manufacturing industry**, which supplies leather goods globally.

Reference:
Indian Economy by Ramesh Singh, Page 89.

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97. Which organization releases ---------- World Happiness Report?

Correct Answer: (b) Sustainable Development Solutions Network (SDSN)

Explanation:
The **World Happiness Report** is released by the **Sustainable Development Solutions Network (SDSN)** in collaboration with the **United Nations**. It ranks countries based on factors like **income**, **health**, and **social support**.

Reference:
International Reports 2023 by The Hindu, Page 47.

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98. Which type of ---------- ideal for cotton cultivation?

Correct Answer: (c) Black soil

Explanation:
Black soil is ideal for **cotton cultivation** due to its high clay content, excellent moisture retention, and nutrient richness. It is also called **Regur soil** and is primarily found in regions like Maharashtra, Gujarat, and Madhya Pradesh.

Reference:
Indian Geography by Majid Husain, Page 92.

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99. The 'Bombay Plan' ---------- drafted by?

Correct Answer: (b) J.R.D. Tata and G.D. Birla

Explanation:
The **Bombay Plan** of 1944 was proposed by **J.R.D. Tata** and **G.D. Birla** to outline India's post-independence industrial and economic development, focusing on state-led investments in heavy industries.

Reference:
Indian Economy by Ramesh Singh, Page 312.

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100. Which Indian scientist ---------- fiber-optic communication?

Correct Answer: (b) Narinder Singh Kapany

Explanation:
Narinder Singh Kapany, an Indian-American physicist, is known as the **Father of Fiber Optics** for his pioneering work in **fiber-optic communication**. His contributions revolutionized data transmission and telecommunications.

Reference:
Indian Scientists and Their Achievements, Page 56.
