







- **Pharmaceutical Chemistry**
- **Biochemistry & Clinical Pathology** 
  - **Pharmacognosy** 
    - **Social Pharmacy**







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Paper 3 Subjects: Pharmaceutical Chemsitry, Biochemistry & Clinical Pathology, Pharmacognosy, Social Pharmacy

#### **Instructions:**

- 1. Total Questions: 150
- 2. Total Marks: 150
- 3. **Duration:** [3 Hours]
- 4. This paper is divided into the following sections:
  - Section A: Pharmaceutical Chemistry (40 Marks)
  - Section B: Biochemistry & Clinical Pathology (40 Marks)
  - Section C: Pharmacognosy (35 Marks)
  - Section D: Social Pharmacy (35 Marks)
- 5. Answer all questions in each section.

# Section A: Pharmaceutical Chemistry (40 Questions, 40 Marks)

- 1. What is the main objective of the process of drug formulation?
- a) To reduce drug toxicity
- b) To enhance drug stability and efficacy
- c) To minimize production costs
- d) To increase the drug's color

## Answer: b) To enhance drug stability and efficacy

Explanation: Drug formulation aims to ensure that a drug is stable, effective, and suitable for patient use.

- 2. Which of the following is a common method for the preparation of oral tablets?
- a) Freeze drying
- b) Granulation
- c) Sterilization
- d) Extraction

## Answer: b) Granulation

Explanation: Granulation is a key process in tablet preparation that ensures the uniformity and proper binding of tablet components.

# 3. What is the primary purpose of a buffer solution in pharmaceutical formulations?

- a) To adjust the pH of the solution
- b) To increase drug solubility
- c) To enhance drug absorption
- d) To improve drug color

# Answer: a) To adjust the pH of the solution

Explanation: Buffer solutions are used to maintain a stable pH in pharmaceutical formulations, which is crucial for drug stability.

# 4. Which of the following is an example of an excipient used in tablet formulations?

- a) Acetaminophen
- b) Lactose
- c) Ibuprofen
- d) Caffeine

## Answer: b) Lactose

Explanation: Lactose is commonly used as a filler or binder in tablet formulations.

# 5. What is the role of surfactants in pharmaceutical formulations?

- a) To increase the drug's color
- b) To improve drug solubility and stability
- c) To decrease drug absorption
- d) To reduce drug potency

## Answer: b) To improve drug solubility and stability

Explanation: Surfactants help in increasing the solubility and stability of drugs in various formulations.

# 6. Which technique is used to determine the melting point of a drug?

- a) Spectroscopy
- b) Chromatography
- c) Differential Scanning Calorimetry
- d) Titration

# **Answer: c) Differential Scanning Calorimetry**

Explanation: Differential Scanning Calorimetry (DSC) is used to determine the melting point and thermal properties of substances.

# 7. What is the main purpose of using preservatives in pharmaceutical formulations?

- a) To enhance drug color
- b) To prevent microbial growth
- c) To increase drug potency
- d) To reduce drug solubility

# Answer: b) To prevent microbial growth

Explanation: Preservatives are added to prevent microbial contamination and extend the shelf life of pharmaceutical products.

# 8. Which of the following is an example of a non-aqueous solvent used in pharmaceutical formulations?

- a) Water
- b) Ethanol
- c) Hydrochloric acid
- d) Sodium chloride solution

# Answer: b) Ethanol

Explanation: Ethanol is commonly used as a non-aqueous solvent in pharmaceutical formulations.

# 9. What is the primary advantage of using a controlled-release drug formulation?

- a) Faster drug absorption
- b) Reduced frequency of dosing
- c) Increased drug color
- d) Enhanced drug taste

# Answer: b) Reduced frequency of dosing

Explanation: Controlled-release formulations allow for a sustained release of the drug, reducing the frequency of dosing.

## 10. What type of reaction occurs when an acid reacts with a base to form water and salt?

- a) Oxidation
- b) Neutralization
- c) Hydrolysis
- d) Condensation

# Answer: b) Neutralization

Explanation: Neutralization is a reaction between an acid and a base resulting in the formation of water and salt.



# 11. What is the primary purpose of using binders in tablet formulations?

- a) To improve the tablet's appearance
- b) To increase tablet hardness and cohesion
- c) To enhance the tablet's solubility
- d) To reduce the tablet's size

# Answer: b) To increase tablet hardness and cohesion

Explanation: Binders help to hold the tablet ingredients together and improve its hardness and cohesion.

## 12. Which of the following methods is used for the analysis of drug purity?

- a) Mass spectrometry
- b) Colorimetry
- c) Microbiological assay
- d) Fourier Transform Infrared Spectroscopy (FTIR)

## Answer: d) Fourier Transform Infrared Spectroscopy (FTIR)

Explanation: FTIR spectroscopy is used to analyze drug purity by identifying molecular vibrations and functional groups.

# 13. What is the primary function of a lubricant in tablet formulation?

- a) To enhance drug solubility
- b) To prevent sticking of tablets to machinery
- c) To improve the tablet's color
- d) To increase drug potency

# Answer: b) To prevent sticking of tablets to machinery

Explanation: Lubricants are used to reduce friction and prevent sticking of tablets to machinery during production.

# 14. Which type of dosage form is designed to release its active ingredient over an extended period?

- a) Immediate-release tablets
- b) Extended-release tablets
- c) Effervescent tablets
- d) Sublingual tablets

## Answer: b) Extended-release tablets

Explanation: Extended-release tablets are formulated to release their active ingredient over an extended period for prolonged therapeutic effect.

# 15. What is the role of antioxidants in pharmaceutical formulations?

- a) To increase drug solubility
- b) To prevent oxidation and degradation of drugs
- c) To enhance drug color
- d) To improve drug taste

## Answer: b) To prevent oxidation and degradation of drugs

Explanation: Antioxidants are used to prevent oxidative degradation of drugs, which helps in maintaining their stability.

## 16. Which of the following is used as a stabilizer in emulsions?

- a) Sodium chloride
- b) Gelatin
- c) Polysorbate
- d) Calcium carbonate

# Answer: c) Polysorbate

Explanation: Polysorbate is used as an emulsifier and stabilizer in pharmaceutical emulsions to maintain the dispersion of ingredients.

# 17. What is the purpose of using coating agents in tablet formulations?

- a) To mask the taste of the drug
- b) To enhance drug solubility
- c) To prevent drug degradation and improve stability
- d) To increase the drug's color

# Answer: c) To prevent drug degradation and improve stability

Explanation: Coating agents protect the drug from environmental factors and improve its stability and appearance.

# 18. Which of the following is a common method for determining the solubility of a drug?

- a) Filtration
- b) Ultracentrifugation
- c) Solubility test
- d) Titration

## Answer: c) Solubility test

Explanation: Solubility tests measure how well a drug dissolves in various solvents to determine its formulation characteristics.

# 19. Which type of reaction involves the transfer of electrons between substances?

- a) Acid-base reaction
- b) Redox reaction
- c) Precipitation reaction
- d) Complexation reaction

## Answer: b) Redox reaction

Explanation: Redox reactions involve the transfer of electrons between substances, resulting in oxidation and reduction processes.

# 20. What is the primary purpose of using diluents in pharmaceutical formulations?

- a) To increase the drug's solubility
- b) To enhance drug absorption
- c) To adjust the volume of the dosage form
- d) To improve the drug's color

# Answer: c) To adjust the volume of the dosage form

Explanation: Diluents are used to adjust the volume of the dosage form and to ensure the proper dosage of the active ingredient.



# 21. Which of the following is a method used for the preparation of colloidal drug systems?

- a) Micronization
- b) Nucleation
- c) Homogenization
- d) Precipitation

## Answer: c) Homogenization

Explanation: Homogenization is used to prepare colloidal drug systems by breaking down particles to ensure uniform dispersion.

## 22. What is the purpose of using stabilizers in suspensions?

- a) To enhance the color of the suspension
- b) To prevent the settling of particles
- c) To increase drug absorption
- d) To improve the taste of the suspension

## Answer: b) To prevent the settling of particles

Explanation: Stabilizers in suspensions help keep particles evenly distributed and prevent settling.

# 23. Which of the following techniques is used for the separation of drug components based on their affinity to a stationary phase?

- a) Titration
- b) Filtration
- c) Chromatography
- d) Distillation

# **Answer: c) Chromatography**

Explanation: Chromatography separates components of a mixture based on their affinity to a stationary phase and a mobile phase.

# 24. What is the primary purpose of using flavoring agents in pharmaceutical formulations?

- a) To enhance drug solubility
- b) To improve patient compliance by masking unpleasant tastes
- c) To increase the drug's potency
- d) To reduce drug toxicity

# Answer: b) To improve patient compliance by masking unpleasant tastes

Explanation: Flavoring agents are used to improve the taste of pharmaceuticals, making them more palatable for patients.

# 25. Which of the following is an example of a semisolid dosage form?

- a) Tablet
- b) Capsule
- c) Cream
- d) Solution

## Answer: c) Cream

Explanation: Creams are semisolid dosage forms used for topical application.

## 26. What is the role of chelating agents in pharmaceutical formulations?

- a) To increase the drug's color
- b) To improve drug absorption
- c) To bind and remove metal ions that could cause degradation
- d) To enhance the drug's taste

# Answer: c) To bind and remove metal ions that could cause degradation

Explanation: Chelating agents bind metal ions that might catalyze drug degradation, improving the stability of formulations.

# 27. Which of the following methods is commonly used to sterilize pharmaceutical equipment?

- a) Filtration
- b) UV irradiation
- c) Steam autoclaving
- d) Dry heating

# Answer: c) Steam autoclaving

Explanation: Steam autoclaving is a widely used method for sterilizing pharmaceutical equipment by using high-pressure steam.

# 28. What is the primary function of a dispersing agent in pharmaceutical formulations?

- a) To increase the solubility of drugs
- b) To improve the drug's color
- c) To enhance drug stability
- d) To ensure uniform distribution of active ingredients

# Answer: d) To ensure uniform distribution of active ingredients

Explanation: Dispersing agents help to evenly distribute active ingredients in a formulation.

# 29. Which of the following is a method for the analysis of drug content in a formulation?

- a) Differential Scanning Calorimetry
- b) High-Performance Liquid Chromatography (HPLC)
- c) Spectroscopy
- d) Microbiological assay

# **Answer: b) High-Performance Liquid Chromatography (HPLC)**

Explanation: HPLC is used to separate and quantify drug components in pharmaceutical formulations.

# 30. What is the role of a suspending agent in liquid formulations?

- a) To increase drug solubility
- b) To stabilize the dispersion of particles
- c) To enhance drug absorption
- d) To improve drug taste

# Answer: b) To stabilize the dispersion of particles

Explanation: Suspended agents prevent the settling of particles in liquid formulations, ensuring uniformity.



# 31. Which of the following is a method for drug extraction from natural sources?

- a) Sublimation
- b) Maceration
- c) Distillation
- d) Filtration

# Answer: b) Maceration

Explanation: Maceration involves soaking plant material in a solvent to extract active ingredients.

## 32. What is the purpose of using a desiccant in pharmaceutical packaging?

- a) To enhance the drug's color
- b) To absorb moisture and prevent drug degradation
- c) To improve drug taste
- d) To increase drug potency

## Answer: b) To absorb moisture and prevent drug degradation

Explanation: Desiccants are used to absorb moisture and maintain the stability of pharmaceuticals.

# 33. Which of the following drugs is an example of a prodrug?

- a) Acetaminophen
- b) Codeine
- c) Ibuprofen
- d) Paracetamol

# Answer: b) Codeine

Explanation: Codeine is a prodrug that is metabolized into its active form, morphine, in the body.

# 34. What is the role of diluents in the preparation of powders?

- a) To enhance solubility
- b) To adjust the volume and aid in uniform mixing
- c) To improve taste
- d) To increase the color

# Answer: b) To adjust the volume and aid in uniform mixing

Explanation: Diluents help to adjust the volume of the powder and ensure uniform distribution of the active ingredient.

# 35. What type of reaction occurs when a drug interacts with another substance to form a new compound?

- a) Complexation
- b) Oxidation
- c) Reduction
- d) Hydrolysis

## Answer: a) Complexation

Explanation: Complexation involves the formation of a new compound through interaction between the drug and another substance.

## 36. What is the primary use of emulsifiers in pharmaceutical formulations?

- a) To improve drug absorption
- b) To stabilize emulsions and prevent phase separation
- c) To enhance drug solubility
- d) To increase drug potency

# Answer: b) To stabilize emulsions and prevent phase separation

Explanation: Emulsifiers help to maintain the stability of emulsions by preventing the separation of oil and water phases.

# 37. What is the purpose of using anti-foaming agents in pharmaceutical formulations?

- a) To enhance drug absorption
- b) To prevent or reduce foam formation
- c) To improve drug color
- d) To increase drug potency

# Answer: b) To prevent or reduce foam formation

Explanation: Anti-foaming agents are used to control foam formation during the manufacturing process of pharmaceutical products.

# 38. Which of the following methods is used to measure the drug's particle size distribution?

- a) Microscopy
- b) Titration
- c) Refractometry
- d) Gravimetry

# Answer: a) Microscopy

Explanation: Microscopy is used to analyze and measure the particle size distribution of drug substances.

# 39. What is the primary function of a preservative in topical pharmaceutical formulations?

- a) To improve the drug's taste
- b) To increase drug potency
- c) To prevent microbial growth and contamination
- d) To enhance the drug's color

# Answer: c) To prevent microbial growth and contamination

Explanation: Preservatives are added to topical formulations to prevent microbial contamination and ensure safety.

# 40. Which of the following is a commonly used method for the analysis of drug stability?

- a) Spectroscopy
- b) Stability testing
- c) Chromatography
- d) Filtration

# Answer: b) Stability testing

Explanation: Stability testing evaluates the drug's stability over time under various conditions to ensure its safety and efficacy.



# Section B: Biochemistry & Clinical Pathology (40 Questions, 40 Marks)

- 1. What is the primary function of enzymes in biochemical reactions?
- a) To increase the reaction rate by lowering activation energy
- b) To provide energy for the reaction
- c) To change the reaction equilibrium
- d) To act as a reactant

## Answer: a) To increase the reaction rate by lowering activation energy

Explanation: Enzymes act as biological catalysts that speed up biochemical reactions by lowering the activation energy.

- 2. Which of the following is the primary energy currency of the cell?
- a) DNA
- b) RNA
- c) ATP
- d) NADH

Answer: c) ATP

Explanation: ATP (adenosine triphosphate) is the primary molecule used by cells for energy.

# 3. The process of glycolysis occurs in which part of the cell?

- a) Nucleus
- b) Mitochondria
- c) Cytoplasm
- d) Endoplasmic reticulum

Answer: c) Cytoplasm

Explanation: Glycolysis, the breakdown of glucose, occurs in the cytoplasm of the cell.

# 4. Which vitamin is essential for the synthesis of collagen?

- a) Vitamin A
- b) Vitamin B12
- c) Vitamin C
- d) Vitamin D

Answer: c) Vitamin C

Explanation: Vitamin C is crucial for the synthesis and maintenance of collagen, an important structural protein.

# 5. What is the primary role of hemoglobin in the blood?

- a) To transport nutrients
- b) To transport oxygen
- c) To regulate blood pH
- d) To fight infections

Answer: b) To transport oxygen

Explanation: Hemoglobin is responsible for transporting oxygen from the lungs to tissues throughout the body.

# 6. Which type of lipid is most commonly found in cell membranes?

- a) Triglycerides
- b) Phospholipids

- c) Steroids
- d) Waxes

# Answer: b) Phospholipids

Explanation: Phospholipids are a major component of cell membranes, forming a bilayer that provides structural integrity.

# 7. What is the main function of insulin in the body?

- a) To increase blood glucose levels
- b) To decrease blood glucose levels
- c) To increase blood pressure
- d) To enhance digestion

## Answer: b) To decrease blood glucose levels

Explanation: Insulin lowers blood glucose levels by facilitating the uptake of glucose into cells.

# 8. Which of the following is a common clinical test used to assess kidney function?

- a) Liver function test
- b) Complete blood count
- c) Serum creatinine test
- d) Blood glucose test

# **Answer: c) Serum creatinine test**

Explanation: The serum creatinine test is commonly used to evaluate kidney function.

# 9. Which hormone is primarily responsible for regulating the body's metabolic rate?

- a) Insulin
- b) Thyroxine
- c) Cortisol
- d) Estrogen

## **Answer: b) Thyroxine**

Explanation: Thyroxine (T4) is a thyroid hormone that regulates the body's metabolic rate.

# 10. The term 'hyperglycemia' refers to:

- a) Low blood glucose levels
- b) High blood glucose levels
- c) Low blood pressure
- d) High blood pressure

# Answer: b) High blood glucose levels

Explanation: Hyperglycemia is characterized by elevated blood glucose levels.



# 11. Which type of lipoprotein is known as "bad cholesterol"?

- a) HDL
- b) LDL
- c) VLDL
- d) IDL

## Answer: b) LDL

Explanation: LDL (low-density lipoprotein) is often referred to as "bad cholesterol" due to its role in depositing cholesterol in arterial walls.

# 12. What is the main function of the liver in carbohydrate metabolism?

- a) To produce bile
- b) To store and release glucose
- c) To synthesize proteins
- d) To metabolize drugs

## Answer: b) To store and release glucose

Explanation: The liver regulates blood glucose levels by storing glucose as glycogen and releasing it into the bloodstream when needed.

## 13. Which of the following is a key regulator of blood clotting?

- a) Hemoglobin
- b) Platelets
- c) Insulin
- d) Albumin

# **Answer: b) Platelets**

Explanation: Platelets play a crucial role in blood clotting by aggregating and forming clots to prevent excessive bleeding.

## 14. What is the primary function of the kidneys in maintaining fluid balance?

- a) To filter blood and remove waste products
- b) To produce hormones
- c) To regulate blood glucose levels
- d) To store excess nutrients

# Answer: a) To filter blood and remove waste products

Explanation: The kidneys filter blood, removing waste products and excess fluids to maintain fluid balance and electrolyte levels.

# 15. Which of the following is a common method for assessing liver function?

- a) Serum glucose test
- b) Liver enzyme tests
- c) Complete blood count
- d) Urinalysis

## **Answer: b) Liver enzyme tests**

Explanation: Liver enzyme tests, such as AST and ALT, are used to assess liver function and detect liver damage.

# 16. What is the role of glycogen in the body?

- a) To provide immediate energy
- b) To store energy
- c) To transport oxygen
- d) To regulate blood pressure

## Answer: b) To store energy

Explanation: Glycogen is a polysaccharide stored in the liver and muscles that serves as a reserve source of energy.

# 17. Which type of protein is involved in immune responses?

- a) Enzymes
- b) Hormones
- c) Antibodies
- d) Structural proteins

# Answer: c) Antibodies

Explanation: Antibodies are proteins that help the immune system recognize and neutralize pathogens.

# 18. What is the primary role of ribosomes in a cell?

- a) To synthesize proteins
- b) To store genetic material
- c) To generate ATP
- d) To package and transport proteins

## Answer: a) To synthesize proteins

Explanation: Ribosomes are responsible for translating genetic information into proteins.

# 19. Which of the following conditions is characterized by elevated levels of uric acid in the blood?

- a) Diabetes mellitus
- b) Gout
- c) Hyperthyroidism
- d) Anemia

## Answer: b) Gout

Explanation: Gout is a condition caused by high levels of uric acid in the blood, leading to joint inflammation and pain.

# 20. The term 'electrolytes' refers to:

- a) Organic molecules involved in energy production
- b) Compounds that conduct electricity in solution
- c) Structural components of cells
- d) Waste products of metabolism

# Answer: b) Compounds that conduct electricity in solution

Explanation: Electrolytes are ions in bodily fluids that help maintain fluid balance and conduct electrical impulses.



# 21. Which of the following tests is used to diagnose diabetes mellitus?

- a) Hemoglobin A1c test
- b) Serum cholesterol test
- c) Liver enzyme test
- d) Complete blood count

# Answer: a) Hemoglobin A1c test

Explanation: The Hemoglobin A1c test measures average blood glucose levels over the past 2-3 months, aiding in the diagnosis of diabetes.

# 22. What is the primary function of albumin in the blood?

- a) To transport oxygen
- b) To maintain oncotic pressure and transport molecules
- c) To fight infections
- d) To regulate blood glucose

# Answer: b) To maintain oncotic pressure and transport molecules

Explanation: Albumin helps maintain blood volume and pressure by drawing water into the bloodstream and transporting various substances.

## 23. Which of the following is a common test used to assess thyroid function?

- a) Serum electrolytes
- b) Thyroid-stimulating hormone (TSH) test
- c) Complete blood count
- d) Serum creatinine test

# Answer: b) Thyroid-stimulating hormone (TSH) test

Explanation: The TSH test measures thyroid function by assessing the amount of thyroidstimulating hormone in the blood.

#### 24. The term 'metabolism' refers to:

- a) The breakdown of nutrients
- b) The synthesis and breakdown of substances in the body
- c) The production of hormones
- d) The regulation of blood pressure

# Answer: b) The synthesis and breakdown of substances in the body

Explanation: Metabolism encompasses all chemical reactions involved in maintaining the living state of the cells and the organism.

# 25. What is the function of the Golgi apparatus in a cell?

- a) To synthesize proteins
- b) To modify, sort, and package proteins and lipids
- c) To produce ATP
- d) To digest cellular waste

## Answer: b) To modify, sort, and package proteins and lipids

Explanation: The Golgi apparatus processes and packages proteins and lipids for secretion or delivery to other organelles.

# 26. Which of the following is a key component of the blood's clotting mechanism?

- a) White blood cells
- b) Red blood cells
- c) Platelets
- d) Plasma proteins

## **Answer: c) Platelets**

Explanation: Platelets are essential for blood clotting by aggregating at sites of vascular injury and forming clots.

# 27. The term 'homeostasis' refers to:

- a) The process of breaking down nutrients
- b) The maintenance of a stable internal environment
- c) The production of blood cells
- d) The storage of energy

# Answer: b) The maintenance of a stable internal environment

Explanation: Homeostasis involves maintaining a stable internal environment despite external changes.

# 28. What is the primary purpose of the Krebs cycle (Citric Acid Cycle)?

- a) To produce ATP
- b) To synthesize proteins
- c) To break down fatty acids
- d) To produce energy through the oxidation of acetyl-CoA

# Answer: d) To produce energy through the oxidation of acetyl-CoA

Explanation: The Krebs cycle generates energy through the oxidation of acetyl-CoA and produces key intermediates for other metabolic processes.

# 29. Which of the following is a common indicator of liver dysfunction?

- a) Elevated serum bilirubin
- b) Low serum glucose
- c) High serum calcium
- d) Increased serum potassium

## Answer: a) Elevated serum bilirubin

Explanation: Elevated bilirubin levels in the blood are commonly associated with liver dysfunction or damage.

#### 30. What is the role of bicarbonate ions in the blood?

- a) To transport oxygen
- b) To regulate blood pH
- c) To provide energy
- d) To aid in digestion

## Answer: b) To regulate blood pH

Explanation: Bicarbonate ions act as a buffer to maintain the pH balance of the blood.

# **DPEE Solved Sample Paper-3**

# **D.Pharma Exit Exam 2024**



# 31. Which of the following is a major protein involved in blood clotting?

- a) Hemoglobin
- b) Albumin
- c) Fibrinogen
- d) Insulin

Answer: c) Fibrinogen

Explanation: Fibringen is a key protein in the blood clotting process that is converted to fibrin to form clots.

# 32. The primary function of the mitochondria is:

- a) To synthesize proteins
- b) To generate ATP through oxidative phosphorylation
- c) To process and package proteins
- d) To digest cellular waste

# Answer: b) To generate ATP through oxidative phosphorylation

Explanation: Mitochondria are known as the powerhouse of the cell, producing ATP through oxidative phosphorylation.

## 33. Which of the following conditions is characterized by a deficiency of vitamin K?

- a) Osteoporosis
- b) Rickets
- c) Bleeding disorders
- d) Scurvy

#### **Answer: c) Bleeding disorders**

Explanation: Vitamin K deficiency can lead to bleeding disorders due to impaired clotting factor production.

## 34. The term 'aerobic respiration' refers to:

- a) Energy production in the absence of oxygen
- b) Energy production in the presence of oxygen
- c) The breakdown of fatty acids
- d) The synthesis of proteins

## Answer: b) Energy production in the presence of oxygen

Explanation: Aerobic respiration involves the production of energy through the complete oxidation of glucose in the presence of oxygen.

## 35. Which of the following is used to measure blood glucose levels over time?

- a) Fasting glucose test
- b) Hemoglobin A1c test
- c) Oral glucose tolerance test
- d) Serum insulin test

## Answer: b) Hemoglobin A1c test

Explanation: The Hemoglobin A1c test provides an average of blood glucose levels over the past 2-3 months.

# 36. What is the primary function of red blood cells?

- a) To transport nutrients
- b) To carry oxygen from the lungs to the tissues
- c) To fight infections
- d) To regulate blood clotting

## Answer: b) To carry oxygen from the lungs to the tissues

Explanation: Red blood cells are responsible for transporting oxygen from the lungs to various tissues throughout the body.

## 37. Which of the following is a key component of cellular membranes?

- a) Nucleic acids
- b) Proteins
- c) Lipids
- d) Carbohydrates

# Answer: c) Lipids

Explanation: Lipids, particularly phospholipids, are essential components of cellular membranes, forming the lipid bilayer.

# 38. What is the function of the endocrine system?

- a) To regulate metabolism
- b) To produce and secrete hormones
- c) To digest food
- d) To remove waste products

# Answer: b) To produce and secrete hormones

Explanation: The endocrine system regulates various bodily functions by producing and secreting hormones into the bloodstream.

# 39. Which of the following tests is used to assess kidney function?

- a) Complete blood count
- b) Serum creatinine test
- c) Liver function test
- d) Thyroid function test

## **Answer: b) Serum creatinine test**

Explanation: The serum creatinine test measures the level of creatinine in the blood, which is an indicator of kidney function.

# 40. What is the primary role of glucose in the body?

- a) To act as a structural component
- b) To provide energy
- c) To facilitate digestion
- d) To regulate hormones

# Answer: b) To provide energy

Explanation: Glucose is a primary source of energy for cells and is crucial for various metabolic processes.

# **DPEE Solved Sample Paper-3**

# **D.Pharma Exit Exam 2024**



# Section C: Pharmacognosy (35 Questions, 35 Marks)

- 1. What is **Pharmacognosy primarily concerned with?**
- a) The synthesis of pharmaceutical compounds
- b) The study of natural drugs and their properties
- c) The clinical use of drugs
- d) The marketing of pharmaceutical products

# Answer: b) The study of natural drugs and their properties

Explanation: Pharmacognosy focuses on the study of medicinal plants and natural substances used in the preparation of drugs.

- 2. Which part of the plant is primarily used for the extraction of essential oils?
- a) Leaves
- b) Roots
- c) Flowers
- d) Seeds

#### Answer: a) Leaves

Explanation: Essential oils are commonly extracted from the leaves of plants such as mint and eucalyptus.

- 3. What is the primary use of alkaloids in medicine?
- a) To act as laxatives
- b) To serve as antibiotics
- c) To have analgesic and antimalarial effects
- d) To reduce blood pressure

# Answer: c) To have analgesic and antimalarial effects

Explanation: Alkaloids are known for their diverse pharmacological activities, including analgesic and antimalarial effects.

# 4. Which plant is the source of quinine, used for the treatment of malaria?

- a) Digitalis purpurea
- b) Papaver somniferum
- c) Cinchona ledgeriana
- d) Atropa belladonna

# Answer: c) Cinchona ledgeriana

Explanation: Quinine is obtained from the bark of Cinchona ledgeriana, used in the treatment of malaria.

# 5. Which of the following is an example of a glycoside?

- a) Morphine
- b) Digoxin
- c) Caffeine
- d) Codeine

## Answer: b) Digoxin

Explanation: Digoxin is a cardiac glycoside used to treat heart conditions.

# 6. What type of natural product is used to treat high blood pressure and heart failure?

- a) Flavonoids
- b) Saponins
- c) Tannins
- d) Cardiac glycosides

# Answer: d) Cardiac glycosides

Explanation: Cardiac glycosides, such as digoxin, are used to manage high blood pressure and heart failure.

# 7. Which plant is known for its sedative properties and is used in the treatment of insomnia?

- a) St. John's Wort
- b) Valerian root
- c) Echinacea
- d) Ginger

# Answer: b) Valerian root

Explanation: Valerian root is used as a natural remedy for insomnia and anxiety due to its sedative effects.

# 8. What is the main therapeutic use of the drug derived from the plant Digitalis purpurea?

- a) Pain relief
- b) Anti-inflammatory
- c) Heart failure
- d) Diuretic

## Answer: c) Heart failure

Explanation: Digitalis purpurea (foxglove) contains cardiac glycosides used to treat heart failure.

# 9. Which of the following is a common method for the extraction of alkaloids from plants?

- a) Steam distillation
- b) Cold maceration
- c) Soxhlet extraction
- d) Sublimation

# Answer: c) Soxhlet extraction

Explanation: Soxhlet extraction is a common method used to extract alkaloids and other compounds from plant materials.

# 10. What is the role of saponins in plants?

- a) To provide color
- b) To protect against herbivores
- c) To aid in seed germination
- d) To attract pollinators

# Answer: b) To protect against herbivores

Explanation: Saponins serve as a defense mechanism to protect plants from herbivores.



# 11. Which plant product is used as an antidiarrheal agent?

- a) Psyllium
- b) Ginger
- c) Garlic
- d) Turmeric

# Answer: a) Psyllium

Explanation: Psyllium husk is used to treat diarrhea by its bulking effect on the stool.

# 12. What class of compounds are flavonoids, and what is their primary function?

- a) Alkaloids; antimicrobial
- b) Terpenoids; anti-inflammatory
- c) Polyphenols; antioxidant
- d) Glycosides; diuretic

# Answer: c) Polyphenols; antioxidant

Explanation: Flavonoids are polyphenolic compounds known for their antioxidant properties.

# 13. Which of the following is an example of a medicinal plant used for its antiinflammatory properties?

- a) Echinacea
- b) Ginkgo biloba
- c) Turmeric
- d) Kava

# Answer: c) Turmeric

Explanation: Turmeric contains curcumin, a compound with well-documented antiinflammatory properties.

# 14. What is the primary use of the plant extract from Ginkgo biloba?

- a) To enhance cognitive function
- b) To treat fungal infections
- c) To manage high blood pressure
- d) To relieve muscle pain

# Answer: a) To enhance cognitive function

Explanation: Ginkgo biloba extract is used to improve cognitive function and memory.

# 15. Which plant is known for its use in the treatment of nausea and motion sickness?

- a) Ginger
- b) Echinacea
- c) St. John's Wort
- d) Chamomile

## Answer: a) Ginger

Explanation: Ginger is widely used to relieve nausea and motion sickness.

# 16. What is the primary active compound in opium poppy (Papaver somniferum)?

- a) Codeine
- b) Morphine
- c) Thebaine
- d) Hydrocodone

## Answer: b) Morphine

Explanation: Morphine is the primary active alkaloid in opium poppy, used for pain management.

# 17. Which of the following is a common test used to identify the presence of alkaloids in plant extracts?

- a) Fehling's test
- b) Dragendorff's reagent test
- c) Salkowski's test
- d) Benedict's test

# Answer: b) Dragendorff's reagent test

Explanation: Dragendorff's reagent test is used to detect the presence of alkaloids in plant extracts.

# 18. What is the main use of the plant Aloe vera in medicine?

- a) As a laxative
- b) To promote wound healing
- c) To treat respiratory infections
- d) To manage diabetes

# Answer: b) To promote wound healing

Explanation: Aloe vera gel is commonly used for its wound-healing and soothing properties.

# 19. Which plant is known for its use in the management of diabetes due to its hypoglycemic effects?

- a) Gymnema sylvestre
- b) Ephedra sinica
- c) Andrographis paniculata
- d) Ginseng

## Answer: a) Gymnema sylvestre

Explanation: Gymnema sylvestre is known for its ability to lower blood sugar levels in diabetic patients.

# 20. The term 'terpenoids' refers to:

- a) Compounds derived from amino acids
- b) Plant compounds derived from terpenes
- c) Alkaloids with psychoactive properties
- d) Glycosides with antimicrobial activity

# Answer: b) Plant compounds derived from terpenes

Explanation: Terpenoids are a large class of plant-derived compounds, including essential oils, that have various biological activities.



# 21. What is the primary use of plant extracts containing tannins?

- a) To treat bacterial infections
- b) To manage hyperlipidemia
- c) To act as astringents
- d) To relieve pain

# Answer: c) To act as astringents

Explanation: Tannins are used as astringents to tighten tissues and reduce inflammation.

# 22. Which plant extract is traditionally used for its adaptogenic properties to help the body cope with stress?

- a) Echinacea
- b) Ginseng
- c) Ginger
- d) St. John's Wort

# Answer: b) Ginseng

Explanation: Ginseng is known for its adaptogenic effects, helping to improve resistance to stress.

# 23. What is the main therapeutic use of the plant Cannabis sativa?

- a) As an antimicrobial agent
- b) To manage pain and nausea

- c) To reduce cholesterol levels
- d) To treat fungal infections

# Answer: b) To manage pain and nausea

Explanation: Cannabis sativa is used for its analgesic and antiemetic properties.

# 24. The process of extracting medicinal compounds using solvents is known as:

- a) Filtration
- b) Distillation
- c) Maceration
- d) Sublimation

## Answer: c) Maceration

Explanation: Maceration involves soaking plant material in a solvent to extract its medicinal compounds.

# 25. What is the role of saponins in plant medicine?

- a) To enhance flavor
- b) To provide color
- c) To produce foam and act as surfactants
- d) To act as preservatives

# Answer: c) To produce foam and act as surfactants

Explanation: Saponins produce foam when shaken in water and act as surfactants with various medicinal properties.

# 26. Which plant is known for its use in the treatment of cough and respiratory disorders due to its expectorant properties?

- a) Eucalyptus
- b) Valerian
- c) Ginkgo
- d) Hawthorn

## Answer: a) Eucalyptus

Explanation: Eucalyptus is used for its expectorant properties to treat cough and respiratory disorders.

# 27. Which plant-derived compound is used to reduce fever?

- a) Aspirin
- b) Acetaminophen
- c) Quinine
- d) Ibuprofen

## Answer: c) Quinine

Explanation: Quinine is derived from the Cinchona tree and is used to reduce fever, especially in malaria.

# 28. What is the main use of the plant extract from Hypericum perforatum?

- a) To manage gastrointestinal disorders
- b) To treat skin infections
- c) To alleviate symptoms of depression
- d) To reduce inflammation

# Answer: c) To alleviate symptoms of depression

Explanation: Hypericum perforatum (St. John's Wort) is used for its antidepressant properties.

# 29. Which class of compounds is primarily responsible for the color of many plant-based medicines?

- a) Flavonoids
- b) Alkaloids
- c) Terpenoids
- d) Phenolic acids

#### Answer: a) Flavonoids

Explanation: Flavonoids contribute to the color of many plant-based medicines and have antioxidant properties.

# 30. Which plant extract is commonly used in traditional medicine to manage gastrointestinal disorders and inflammation?

- a) Chamomile
- b) Echinacea
- c) Aloe vera
- d) Ginseng

# Answer: a) Chamomile

Explanation: Chamomile is known for its use in managing gastrointestinal disorders and its anti-inflammatory effects.



#### 31. The term 'herbalist' refers to:

- a) A person who studies synthetic drugs
- b) A practitioner who uses herbs for therapeutic purposes
- c) A chemist specializing in pharmaceuticals
- d) A technician who prepares herbal products

# Answer: b) A practitioner who uses herbs for therapeutic purposes

Explanation: An herbalist is someone who uses herbal remedies for treating health conditions.

# 32. Which plant is known for its use in treating insomnia and anxiety due to its calming effects?

- a) Ginkgo biloba
- b) Kava
- c) Ginger
- d) Peppermint

## Answer: b) Kava

Explanation: Kava is used for its sedative effects and is commonly used to treat insomnia and anxiety.

# 33. Which of the following is a characteristic feature of essential oils?

- a) They are water-soluble
- b) They have a strong odor

- c) They are obtained from roots
- d) They are solid at room temperature

# Answer: b) They have a strong odor

Explanation: Essential oils are known for their strong odors and are typically used in aromatherapy.

# 34. Which plant extract is commonly used for its anti-inflammatory and antioxidant properties, particularly in treating arthritis?

- a) Turmeric
- b) Ginkgo
- c) Echinacea
- d) St. John's Wort

# Answer: a) Turmeric

Explanation: Turmeric, containing curcumin, is well-known for its anti-inflammatory and antioxidant effects.

# 35. What is the primary method of ensuring the quality and potency of herbal medicines?

- a) Solvent extraction
- b) Standardization and quality control
- c) Drying and grinding
- d) Packaging and labeling

# Answer: b) Standardization and quality control

Explanation: Standardization and quality control are crucial to ensure the efficacy and safety of herbal medicines.



#### Section D: Social Pharmacy (35 Questions, 35 Marks)

#### 1. What is the primary focus of social pharmacy?

- a) Drug development
- b) Drug distribution
- c) The impact of drug use on society
- d) Drug interactions

#### Answer: c) The impact of drug use on society

Explanation: Social pharmacy examines how drug use affects individuals and communities, including policies and public health aspects.

#### 2. Which of the following is a primary objective of pharmaceutical care?

- a) To improve drug efficacy
- b) To optimize therapeutic outcomes for patients
- c) To reduce medication costs
- d) To enhance drug marketing

#### Answer: b) To optimize therapeutic outcomes for patients

Explanation: Pharmaceutical care aims to ensure that medications are used effectively to achieve the best possible health outcomes for patients.

#### 3. What does the term 'pharmacy practice' refer to?

- a) The study of drug synthesis
- b) The dispensing of medications and patient care
- c) The development of new drugs
- d) The regulation of pharmaceutical companies

#### Answer: b) The dispensing of medications and patient care

Explanation: Pharmacy practice involves the activities related to dispensing medications and providing patient care.

#### 4. Which factor is most important in determining the effectiveness of a drug therapy?

- a) The drug's cost
- b) The patient's adherence to the prescribed regimen

- c) The brand of the drug
- d) The color of the medication

#### Answer: b) The patient's adherence to the prescribed regimen

Explanation: Effective drug therapy depends significantly on the patient's adherence to the prescribed medication regimen.

#### 5. What is a major challenge in medication adherence?

- a) Drug formulation
- b) Patient education
- c) Cost of medications
- d) Availability of medications

#### Answer: c) Cost of medications

Explanation: High costs of medications can be a significant barrier to medication adherence for many patients.

#### 6. Which model is used to understand and improve patient adherence to medication?

- a) Health Belief Model
- b) Biochemical Model
- c) Molecular Model
- d) Pharmacokinetic Model

#### Answer: a) Health Belief Model

Explanation: The Health Belief Model is used to understand how patients perceive health risks and the benefits of adherence to medication.

#### 7. What is the primary role of a community pharmacist?

- a) To conduct clinical trials
- b) To provide patient-centered care and medication counseling
- c) To manufacture pharmaceuticals
- d) To regulate pharmaceutical policies

#### Answer: b) To provide patient-centered care and medication counseling

Explanation: Community pharmacists focus on delivering patient-centered care and counseling to help manage health conditions effectively.

#### 8. In which setting do pharmacists typically focus on preventive care?

- a) Hospitals
- b) Community pharmacies
- c) Research laboratories
- d) Pharmaceutical companies

#### **Answer: b) Community pharmacies**

Explanation: Community pharmacists often focus on preventive care, including vaccination services and health screenings.

#### 9. What does 'pharmaceutical policy' encompass?

- a) Drug formulation and development
- b) Drug pricing and reimbursement
- c) Patient education on drug use
- d) Drug marketing strategies

#### Answer: b) Drug pricing and reimbursement

Explanation: Pharmaceutical policy includes aspects related to drug pricing, reimbursement mechanisms, and regulatory issues.

#### 10. Which approach is commonly used to educate patients about medication use?

- a) Medication therapy management
- b) Pharmaceutical marketing
- c) Drug development
- d) Clinical trials

#### Answer: a) Medication therapy management

Explanation: Medication therapy management involves comprehensive patient education to optimize medication use and improve outcomes.



#### 11. What is 'pharmacovigilance'?

- a) The study of drug interactions
- b) The monitoring of adverse drug reactions and safety
- c) The development of new medications
- d) The evaluation of drug efficacy

#### Answer: b) The monitoring of adverse drug reactions and safety

Explanation: Pharmacovigilance involves tracking and assessing the safety of drugs once they are on the market to identify and manage adverse reactions.

#### 12. What is the primary goal of public health initiatives related to pharmaceuticals?

- a) To increase drug sales
- b) To improve overall health outcomes and reduce disease burden
- c) To focus solely on drug development
- d) To regulate pharmaceutical companies

#### Answer: b) To improve overall health outcomes and reduce disease burden

Explanation: Public health initiatives aim to enhance health outcomes and reduce the impact of diseases through effective pharmaceutical interventions.

## 13. Which of the following is an example of a preventive health service provided by pharmacists?

- a) Blood pressure monitoring
- b) Drug synthesis
- c) Clinical trial management
- d) Drug regulatory affairs

#### Answer: a) Blood pressure monitoring

Explanation: Blood pressure monitoring is a preventive health service that community pharmacists often provide to help manage and prevent hypertension.

#### 14. What is the purpose of medication reconciliation?

- a) To assess the cost of medications
- b) To ensure accurate and complete medication lists during transitions of care

- c) To develop new drug formulations
- d) To conduct drug research

**Answer: b) To ensure accurate and complete medication lists during transitions of care** Explanation: Medication reconciliation ensures that patients have accurate medication lists when transitioning between different healthcare settings.

#### 15. What role do pharmacists play in managing chronic diseases?

- a) They develop new drugs
- b) They conduct surgeries
- c) They provide medication management and patient education
- d) They manufacture pharmaceuticals

#### Answer: c) They provide medication management and patient education

Explanation: Pharmacists play a key role in managing chronic diseases through medication management and patient education.

#### 16. What is 'drug utilization review'?

- a) The assessment of drug efficacy in clinical trials
- b) The evaluation of drug usage patterns and outcomes in a healthcare system
- c) The development of new drugs
- d) The regulation of drug manufacturing

**Answer: b) The evaluation of drug usage patterns and outcomes in a healthcare system** Explanation: Drug utilization review involves evaluating how drugs are used in healthcare systems to ensure appropriate and effective use.

#### 17. Which factor is important for improving medication adherence among patients?

- a) Increasing drug prices
- b) Simplifying medication regimens
- c) Reducing the availability of medications
- d) Increasing the number of medications prescribed

#### Answer: b) Simplifying medication regimens

Explanation: Simplifying medication regimens can help improve adherence by making it easier for patients to follow their prescribed therapy.

#### 18. What is the primary focus of health literacy initiatives in pharmacy practice?

- a) Drug marketing strategies
- b) Improving patients' understanding of health information and medication use
- c) Drug manufacturing processes
- d) Pharmaceutical sales tactics

Answer: b) Improving patients' understanding of health information and medication use Explanation: Health literacy initiatives aim to enhance patients' comprehension of health information and their ability to use medications effectively.

#### 19. What is a key component of medication therapy management (MTM)?

- a) Drug marketing
- b) Patient-centered care
- c) Drug formulation
- d) Drug pricing

#### Answer: b) Patient-centered care

Explanation: MTM focuses on providing care tailored to individual patient needs to optimize medication use and improve health outcomes.

#### 20. What role do pharmacists play in managing medication side effects?

- a) They conduct drug research
- b) They monitor and manage side effects and provide counseling
- c) They regulate drug manufacturing
- d) They develop new medications

#### Answer: b) They monitor and manage side effects and provide counseling

Explanation: Pharmacists are involved in identifying, managing, and providing advice on medication side effects to ensure safe and effective use.



#### 21. What is the purpose of patient medication profiles?

- a) To track drug pricing
- b) To monitor and manage a patient's medication therapy and history
- c) To develop new pharmaceutical products
- d) To conduct clinical trials

#### Answer: b) To monitor and manage a patient's medication therapy and history

Explanation: Patient medication profiles help track a patient's medication use and history to ensure appropriate and safe therapy.

### 22. Which method is commonly used to enhance patient engagement in their healthcare?

- a) Patient education and counseling
- b) Drug advertising
- c) Pharmaceutical lobbying
- d) Drug formulation research

#### Answer: a) Patient education and counseling

Explanation: Educating and counseling patients helps them become more engaged in their healthcare and medication management.

#### 23. What is the primary objective of pharmaceutical care plans?

- a) To increase drug sales
- b) To ensure effective and safe use of medications
- c) To regulate drug prices
- d) To develop new drug formulations

#### Answer: b) To ensure effective and safe use of medications

Explanation: Pharmaceutical care plans are designed to ensure that medications are used effectively and safely to achieve the best patient outcomes.

#### 24. What is the role of pharmacists in disease prevention?

- a) Conducting research on drug efficacy
- b) Providing immunizations and health screenings

- c) Developing new medications
- d) Regulating drug manufacturing

#### Answer: b) Providing immunizations and health screenings

Explanation: Pharmacists contribute to disease prevention by offering immunizations and health screenings to identify and manage health conditions.

#### 25. How can pharmacists assist in managing medication costs for patients?

- a) By providing discounts on medications
- b) By helping patients find cost-effective drug options and insurance coverage
- c) By developing cheaper drug formulations
- d) By increasing drug prices

Answer: b) By helping patients find cost-effective drug options and insurance coverage Explanation: Pharmacists can assist patients in managing medication costs by finding affordable drug options and helping with insurance coverage.

#### 26. What is the purpose of medication adherence programs?

- a) To reduce medication costs
- b) To help patients follow their prescribed medication regimens
- c) To develop new pharmaceutical products
- d) To conduct drug research

#### Answer: b) To help patients follow their prescribed medication regimens

Explanation: Medication adherence programs aim to support patients in following their prescribed regimens to improve therapeutic outcomes.

#### 27. Which of the following is a key strategy for improving medication safety?

- a) Enhancing drug marketing
- b) Implementing medication error reporting systems
- c) Increasing drug prices
- d) Reducing medication availability

#### Answer: b) Implementing medication error reporting systems

Explanation: Medication error reporting systems help identify and prevent errors, thereby improving medication safety.

#### 28. What does 'medication therapy management' (MTM) focus on?

- a) Drug development
- b) Assessing and optimizing medication use for individual patients
- c) Conducting clinical trials
- d) Regulating drug prices

#### Answer: b) Assessing and optimizing medication use for individual patients

Explanation: MTM focuses on evaluating and optimizing medication use to ensure effective and safe therapy for each patient.

#### 29. What is the role of pharmacists in managing polypharmacy?

- a) To reduce drug costs
- b) To evaluate and manage multiple medications to avoid interactions and side effects
- c) To develop new drug formulations
- d) To regulate drug prices

#### Answer: b) To evaluate and manage multiple medications to avoid interactions and side effects

Explanation: Pharmacists help manage polypharmacy by reviewing medication regimens to prevent drug interactions and side effects.

#### 30. What is an important aspect of patient-centered care in pharmacy practice?

- a) Focusing on drug sales
- b) Tailoring care to individual patient needs and preferences
- c) Conducting drug research
- d) Regulating pharmaceutical companies

#### Answer: b) Tailoring care to individual patient needs and preferences

Explanation: Patient-centered care involves customizing care to meet each patient's specific needs and preferences for better health outcomes.



#### 31. Which concept emphasizes the role of pharmacists in public health?

- a) Clinical research
- b) Health promotion and disease prevention
- c) Drug development
- d) Pharmaceutical manufacturing

#### Answer: b) Health promotion and disease prevention

Explanation: Pharmacists contribute to public health by promoting health and preventing disease through various services and education.

### 32. Wh<mark>at is the primary benefit</mark> of integrating pharmacists into multidisciplinary healthcare teams?

- a) Increasing drug sales
- b) Enhancing patient care through collaborative approaches
- c) Developing new drugs
- d) Regulating drug prices

#### Answer: b) Enhancing patient care through collaborative approaches

Explanation: Integrating pharmacists into healthcare teams improves patient care through collaboration and comprehensive management of health conditions.

#### 33. What does the term 'medication adherence' refer to?

- a) The process of developing new drugs
- b) The extent to which patients follow prescribed medication regimens
- c) The regulation of drug prices
- d) The marketing of pharmaceuticals

#### Answer: b) The extent to which patients follow prescribed medication regimens

Explanation: Medication adherence refers to how well patients follow the instructions for their prescribed medications.

### 34. Which type of pharmacy practice focuses on improving public health and promoting wellness?

- a) Clinical pharmacy
- b) Community pharmacy

- c) Hospital pharmacy
- d) Research pharmacy

#### **Answer: b) Community pharmacy**

Explanation: Community pharmacy emphasizes improving public health and wellness through various preventive and educational services.

#### 35. What is the role of pharmacists in addressing medication-related problems?

- a) To develop new drugs
- b) To identify, prevent, and resolve medication-related problems
- c) To regulate drug manufacturing
- d) To conduct clinical research

#### Answer: b) To identify, prevent, and resolve medication-related problems

Explanation: Pharmacists play a critical role in detecting, preventing, and resolving issues related to medication use to ensure patient safety and effectiveness.

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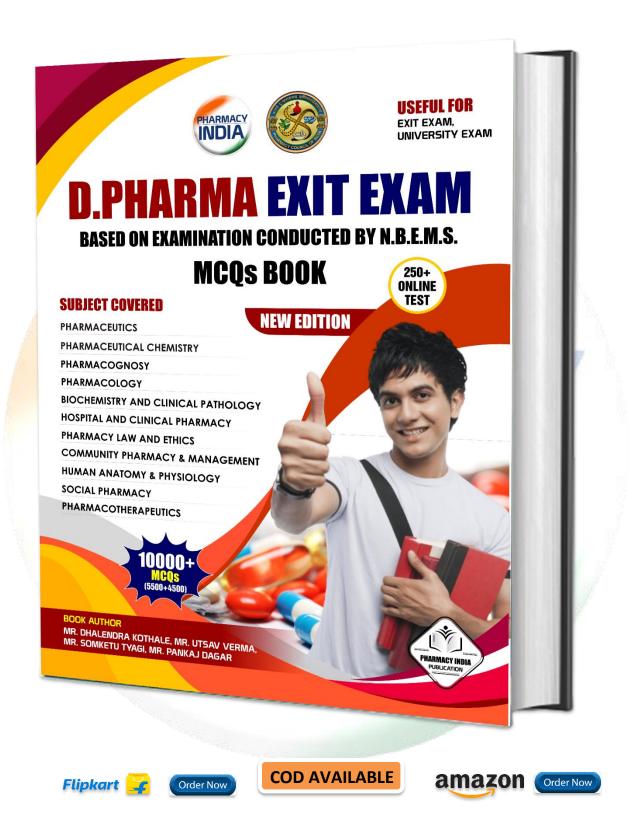
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