

OJEE LE Pharm Sample Paper 02

A) Mode and Time: The exam is a Computer Based Test (CBT) lasting 60 minutes.

B) Total Questions: The exam contains 60 questions.

C) Marking Scheme & Rules:

- +4 marks for each correct answer; -1 mark for each incorrect answer.

Q1. The "Angle of Repose" is a fundamental measurement used to characterize which property of a pharmaceutical powder?

- A. Porosity
- B. Flowability
- C. Density
- D. Solubility

Q2. Which sterilization method is universally recommended for thermostable glassware and metal instruments?

- A. Autoclaving
- B. Dry heat sterilization
- C. Membrane filtration
- D. Gas sterilization

Q3. The "Levigation" process in the preparation of ointments involves:

- A. Mixing with a small amount of liquid to form a smooth paste
- B. Heating the base to its melting point
- C. Adding a preservative
- D. Reducing the particle size in a solvent

Q4. According to the Indian Pharmacopoeia, "Light resistance" for a container means it must protect the contents from:

- A. Moisture
- B. Oxygen
- C. Actinic light
- D. Microbial growth

Q5. Which of the following is a classic example of an "Unorganized" crude drug?

- A. Senna leaves
- B. Nux vomica seeds
- C. Acacia gum
- D. Clove buds

Q6. The active constituent 'Eugenol' is the primary medicinal principle responsible for the properties of:

- A. Cinnamon
- B. Clove
- C. Ginger
- D. Peppermint

Q7. In the ABO blood group system, the presence of both A and B antigens on the red blood cell surface characterizes:

- A. Blood type A
- B. Blood type B
- C. Blood type AB
- D. Blood type O

Q8. Which organelle is responsible for the detoxification of drugs and poisons in the liver cells?

- A. Rough endoplasmic reticulum
- B. Smooth endoplasmic reticulum
- C. Lysosome
- D. Vacuole

Q9. What is the primary function of a "Sinoatrial (SA) Node" in the human heart?

- A. To distribute blood to the lungs
- B. To act as the heart's natural pacemaker
- C. To prevent backflow of blood
- D. To exchange oxygen in the heart

Q10. Levodopa is typically combined with Carbidopa in the treatment of Parkinson's disease to:

- A. Increase the absorption of Levodopa
- B. Prevent peripheral decarboxylation of Levodopa
- C. Potentiate the effect of dopamine in the blood
- D. Reduce the cost of therapy

Q11. The "First-pass effect" is most pronounced when a drug is administered via which route?

- A. Intravenous
- B. Sublingual
- C. Oral
- D. Intramuscular

Q12. Which drug is considered the standard antidote for severe poisoning by Organophosphate compounds?

- A. Naloxone
- B. Atropine
- C. Protamine sulfate
- D. Flumazenil

Q13. What is the target enzyme inhibited by Aspirin to produce its anti-platelet effect?

- A. Proton pump
- B. Cyclooxygenase
- C. Acetylcholinesterase
- D. Dihydrofolate reductase

Q14. In inventory management, what does "ABC analysis" prioritize?

- A. Alphabetical order of drugs
- B. Annual consumption value
- C. Expiration dates
- D. Pharmacological classification

Q15. According to the Drugs and Cosmetics Act, which schedule specifies the requirements for Good Manufacturing Practices (GMP)?

- A. Schedule H
- B. Schedule M
- C. Schedule X
- D. Schedule G

Q16. The "Superscription" part of a prescription is identified by the symbol:

- A. Rx
- B. g
- C. qs
- D. sig

Q17. Which class of antibiotics contains a Beta-lactam ring as its core structure?

- A. Tetracyclines
- B. Aminoglycosides
- C. Penicillins
- D. Macrolides

Q18. Which vitamin deficiency leads to the condition known as "Scurvy"?

- A. Vitamin A
- B. Vitamin B1
- C. Vitamin C
- D. Vitamin D

Q19. What is the normal blood glucose level (fasting) in a healthy adult?

- A. 70-100 mg/dL
- B. 150-200 mg/dL
- C. 200-250 mg/dL
- D. 300+ mg/dL

Q20. The pH of a standard isotonic solution is approximately:

- A. 5.4
- B. 7.4
- C. 9.4
- D. 2.4

Q21. Which plant is the natural source of the alkaloid Reserpine?

- A. Rauwolfia serpentina
- B. Papaver somniferum
- C. Digitalis purpurea
- D. Cinchona officinalis

Q22. Which is the primary role of the "Pharmacy and Therapeutics Committee" in a hospital?

- A. To hire staff
- B. To update the hospital formulary
- C. To manage patient billing
- D. To keep hospital records

Q23. The term "Bioavailability" refers to:

- A. The amount of drug in the stomach
- B. The fraction of an administered dose reaching systemic circulation
- C. The time it takes to dissolve
- D. The rate of drug excretion

Q24. Which substance is used as a chemical antidote for heavy metal poisoning (Arsenic/Mercury)?

- A. EDTA
- B. Dimercaprol (BAL)
- C. Vitamin K
- D. Naloxone

Q25. A "Liniment" is applied to the skin:

- A. With rubbing

- B. Without rubbing
- C. As a compress
- D. As an aerosol

Q26. What is the standard volume of a Size 0 hard gelatin capsule?

- A. 0.13 ml
- B. 0.68 ml
- C. 0.95 ml
- D. 0.37 ml

Q27. Which reagent gives an orange-red precipitate with alkaloids?

- A. Mayer's
- B. Dragendorff's
- C. Wagner's
- D. Hager's

Q28. The "Master Gland" of the human endocrine system is the:

- A. Thyroid
- B. Pituitary
- C. Adrenal
- D. Pancreas

Q29. Which cell type produces insulin in the pancreas?

- A. Alpha cells
- B. Beta cells
- C. Delta cells
- D. Exocrine cells

Q30. What is the legal meaning of "Schedule H" drugs in India?

- A. Over-the-counter drugs
- B. Prescription-only drugs
- C. Narcotics

D. Nutritional supplements

Q31. Which enzyme is inhibited by Proton Pump Inhibitors (PPIs)?

- A. Cyclooxygenase
- B. H^+/K^+ ATPase
- C. Acetylcholinesterase
- D. Lipase

Q32. The "Lead Time" in inventory management refers to:

- A. Time to sell a drug
- B. Time between order and receipt
- C. Shelf life of a drug
- D. Delivery distance

Q33. Which organ is primarily responsible for the excretion of drug metabolites?

- A. Liver
- B. Lungs
- C. Kidney
- D. Skin

Q34. Which disease is characterized by the deficiency of Vitamin A?

- A. Night blindness
- B. Anemia
- C. Rickets
- D. Goiter

Q35. What is the active constituent of Clove?

- A. Menthol
- B. Eugenol
- C. Camphor
- D. Cineole

Q36. A "Solenoidal" field has a divergence of:

- A. 1
- B. 0
- C. Infinity
- D. Negative

Q37. Which blood group is the "Universal Recipient"?

- A. A
- B. B
- C. AB
- D. O

Q38. Which part of the prescription indicates the drug name and quantity?

- A. Superscription
- B. Inscription
- C. Subscription
- D. Signatura

Q39. The "Pharmacopoeia" is a book containing:

- A. Medical laws
- B. Drug standards
- C. Patient records
- D. Hospital policies

Q40. What is the unit of measure for the radioactivity of a substance?

- A. Curie
- B. Watt
- C. Ohm
- D. Volt

Q41. Which of the following is a broad-spectrum antibiotic?

- A. Penicillin G
- B. Tetracycline

C. Nystatin

D. Aspirin

Q42. The "Gram staining" technique classifies bacteria into:

A. Positive/Negative

B. Acid-fast/Non-acid-fast

C. Aerobic/Anaerobic

D. Motile/Non-motile

Q43. Which part of the heart receives oxygenated blood from the lungs?

A. Right atrium

B. Left atrium

C. Right ventricle

D. Left ventricle

Q44. What does "OTC" stand for in pharmacy?

A. Over-the-counter

B. Only-to-consume

C. Order-to-collect

D. On-the-clock

Q45. Which gas is used for the sterilization of plastic devices?

A. Ethylene oxide

B. Nitrogen

C. Carbon dioxide

D. Helium

Q46. What is the function of a "Glidant" in tablet formulation?

A. To color the tablet

B. To improve powder flow

C. To bind ingredients

D. To add flavor

Q47. "Pharmacognosy" is the study of:

- A. Chemical synthesis of drugs
- B. Crude drugs of natural origin
- C. Drug distribution
- D. Pharmacokinetics

Q48. Which anticoagulant drug is an antagonist of Vitamin K?

- A. Heparin
- B. Warfarin
- C. Aspirin
- D. Clopidogrel

Q49. Which of the following is a fat-soluble vitamin?

- A. Vitamin C
- B. Vitamin B1
- C. Vitamin A
- D. Vitamin B12

Q50. What is the normal pulse rate for a resting adult?

- A. 40-60 bpm
- B. 72-80 bpm
- C. 100-120 bpm
- D. 150+ bpm

Q51. "Mottling" in tablets is caused by:

- A. Uneven color distribution
- B. High moisture
- C. Low machine speed
- D. Air entrapment

Q52. What is the main chemical compound in baking soda?

- A. Sodium bicarbonate

- B. Sodium chloride
- C. Calcium carbonate
- D. Magnesium sulfate

Q53. Which nerve acts as the pacemaker of the heart?

- A. Vagus nerve
- B. Sinoatrial node
- C. Spinal nerve
- D. Optic nerve

Q54. What does "Vd" represent in pharmacokinetics?

- A. Volume of distribution
- B. Velocity of decay
- C. Value of dose
- D. Volume of drug

Q55. Which schedule regulates "Narcotic drugs"?

- A. Schedule H
- B. Schedule M
- C. Schedule X
- D. Schedule G

Q56. Which type of glass is used for parenteral preparations?

- A. Type I
- B. Type II
- C. Type III
- D. Type IV

Q57. What is the main action of "Ondansetron"?

- A. Antiemetic
- B. Analgesic
- C. Antipyretic

D. Antiseptic

Q58. Which organ produces Bile?

A. Stomach

B. Liver

C. Pancreas

D. Kidney

Q59. What is the "D-value" in sterilization?

A. Decimal reduction time

B. Dose of drug

C. Duration of action

D. Depth of filter

Q60. Which reagent is used for the "Iron limit test"?

A. Thioglycolic acid

B. Silver nitrate

C. Barium chloride

D. Ammonia

Solutions

1. B

Explanation: The angle of repose is a physical property of powders; a smaller angle indicates better flowability, while a larger angle indicates poor flow.

2. B

Explanation: Dry heat sterilization (e.g., 160°C for 2 hours) is the standard method for non-aqueous, thermostable items like glassware and surgical metals.

3. A

Explanation: Levigation is the process of grinding a drug in a mortar with a small amount of liquid (in which it is insoluble) to create a smooth, fine-particulate paste.

4. C

Explanation: According to pharmacopoeial standards, light-resistant containers are designed to protect light-sensitive drugs from actinic (UV/visible) light degradation.

5. C

Explanation: Acacia gum is an exudate from the acacia tree and lacks organized cellular structure, classifying it as an "unorganized" drug.

6. B

Explanation: Eugenol is the chief constituent of clove oil, providing the characteristic aroma and antiseptic/analgesic properties.

7. C

Explanation: Blood type AB possesses both A and B antigens on its red blood cells, which allows it to receive from all groups (universal recipient).

8. B

Explanation: The smooth endoplasmic reticulum in liver cells contains enzymes that oxidize and detoxify xenobiotics, drugs, and metabolic poisons.

9. B

Explanation: The sinoatrial (SA) node generates rhythmic electrical impulses, naturally setting the heart rate and acting as the primary pacemaker.

10. B

Explanation: Carbidopa inhibits peripheral DOPA decarboxylase, allowing more Levodopa to cross the blood-brain barrier before it is converted into dopamine.

11. C

Explanation: Oral administration involves absorption from the GI tract followed by passage through the portal vein to the liver, where extensive metabolism occurs.

12. B

Explanation: Atropine competitively blocks muscarinic receptors to counteract the excess acetylcholine buildup caused by organophosphate inhibition of acetylcholinesterase.

13. B

Explanation: Aspirin irreversibly inhibits the cyclooxygenase (COX-1) enzyme, which is required for the production of thromboxane A₂ in platelets.

14. B

Explanation: ABC analysis classifies drugs based on their annual consumption value, prioritizing high-value (A) items for strict inventory control.

15. B

Explanation: Schedule M of the Drugs and Cosmetics Act provides the mandatory requirements for Good Manufacturing Practices (GMP) for pharmaceutical manufacturing units.

16. A

Explanation: The "Rx" symbol is the superscription of a prescription, meaning "Recipe" (take thou), signaling the start of the physician's instructions.

17. C

Explanation: Penicillins, cephalosporins, and carbapenems all share the β -lactam ring as their core antibacterial pharmacophore.

18. C

Explanation: Vitamin C (Ascorbic acid) deficiency causes Scurvy, characterized by collagen synthesis failure leading to bleeding gums and fragile vessels.

19. A

Explanation: In clinical practice, 70-100 mg/dL is the standard range for a fasting blood glucose level in a non-diabetic adult.

20. B

Explanation: Blood plasma is naturally isotonic, which is equivalent to a pH of approximately 7.4 (slightly alkaline).

21. A

Explanation: Reserpine is an indole alkaloid extracted from the roots of *Rauwolfia serpentina* (Indian Snakeroot) used to treat hypertension.

22. B

Explanation: The PTC (Pharmacy and Therapeutics Committee) creates the hospital formulary, which is the official list of medications approved for use within that institution.

23. B

Explanation: Bioavailability is the proportion/fraction of an administered dose of unchanged drug that reaches the systemic circulation.

24. B

Explanation: Dimercaprol, also known as British Anti-Lewisite (BAL), is the standard chelating agent for treating arsenic and mercury poisoning.

25. A

Explanation: Liniments are applied topically with friction/rubbing to facilitate penetration and provide relief.

26. B

Explanation: A size 0 capsule is a standard pharmaceutical size with an approximate capacity of 0.68 ml.

27. B

Explanation: Dragendorff's reagent (potassium bismuth iodide) gives an orange-

red/brown precipitate with alkaloids.

28. B

Explanation: The pituitary gland controls many other endocrine glands, earning it the title of "master gland."

29. B

Explanation: Beta cells within the Islets of Langerhans in the pancreas produce and secrete insulin in response to blood glucose rises.

30. B

Explanation: Schedule H drugs require a prescription from a registered practitioner to be legally dispensed.

31. B

Explanation: Proton Pump Inhibitors (PPIs) inhibit the H^+/K^+ ATPase enzyme, preventing the final step of gastric acid production.

32. B

Explanation: Lead time is the period between placing a purchase order for supplies and actually receiving them in the inventory.

33. C

Explanation: The kidneys filter metabolic wastes and drug metabolites from the blood to be excreted as urine.

34. A

Explanation: Vitamin A is essential for eye health; deficiency causes night blindness (difficulty seeing in dim light).

35. B

Explanation: Eugenol is the primary phenolic component in clove oil, providing its analgesic and antiseptic properties.

36. B

Explanation: In vector calculus, the divergence of a solenoidal field is zero ($\nabla \cdot \mathbf{V} = 0$).

37. C

Explanation: AB positive is the universal recipient because its red cells have both antigens, meaning it recognizes all blood types as "self."

38. B

Explanation: The inscription contains the names and strengths of the drugs prescribed for the patient.

39. B

Explanation: A pharmacopoeia provides standardized drug monographs detailing tests for identity, purity, and potency.

40. A

Explanation: The Curie (Ci) is a traditional unit of radioactivity, though the Becquerel (Bq) is the SI standard.

41. B

Explanation: Tetracyclines are effective against a wide range of both Gram-

positive and Gram-negative bacteria, classifying them as broad-spectrum.

42. A

Explanation: Gram staining classifies bacteria based on their cell wall structure into Gram-positive (purple) and Gram-negative (pink).

43. B

Explanation: The left atrium of the heart receives oxygenated blood from the pulmonary veins after gas exchange in the lungs.

44. A

Explanation: OTC stands for "Over-The-Counter," referring to drugs available without a physician's prescription.

45. A

Explanation: Ethylene oxide is a gas used for sterilizing heat-sensitive materials like plastics and certain medical devices.

46. B

Explanation: A glidant is added to tablet formulations specifically to reduce inter-particulate friction and improve powder flow into the die.

47. B

Explanation: Pharmacognosy is the study of medicines derived from natural sources (plants, animals, minerals).

48. B

Explanation: Warfarin inhibits Vitamin K-dependent clotting factors, thereby acting as an antagonist to Vitamin K.

49. C

Explanation: Vitamin A is fat-soluble (A, D, E, K). Vitamin C and B-complex vitamins are water-soluble.

50. B

Explanation: The normal resting pulse rate for an adult is generally accepted between 60 to 100 bpm, with 72-80 being an average range.

51. A

Explanation: Mottling is an appearance defect due to improper mixing of dyes or uneven drying, resulting in patchy color distribution.

52. A

Explanation: Baking soda is chemically Sodium bicarbonate ($NaHCO_3$).

53. B

Explanation: The sinoatrial (SA) node is the heart's natural pacemaker, initiating the electrical signal that causes the heart to contract.

54. A

Explanation: In pharmacokinetics, V_d (Volume of distribution) is a theoretical volume that reflects the extent of drug distribution in the body.

55. C

Explanation: Schedule X lists narcotic and psychotropic substances that have a high potential for abuse.

56. A

Explanation: Type I glass is high-resistance borosilicate glass, the only type suitable for all parenteral preparations.

57. A

Explanation: Ondansetron is a 5-HT₃ receptor antagonist used to manage severe nausea, especially in cancer patients receiving chemotherapy.

58. B

Explanation: The liver produces bile, which is then stored in the gallbladder before being released into the small intestine for fat digestion.

59. A

Explanation: The D-value is the Decimal reduction time, representing the time needed to reduce the microbial count by 90% at a constant temperature.

60. A

Explanation: Thioglycolic acid is used to form the colored iron complex in the Limit Test for Iron as defined by the IP.

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